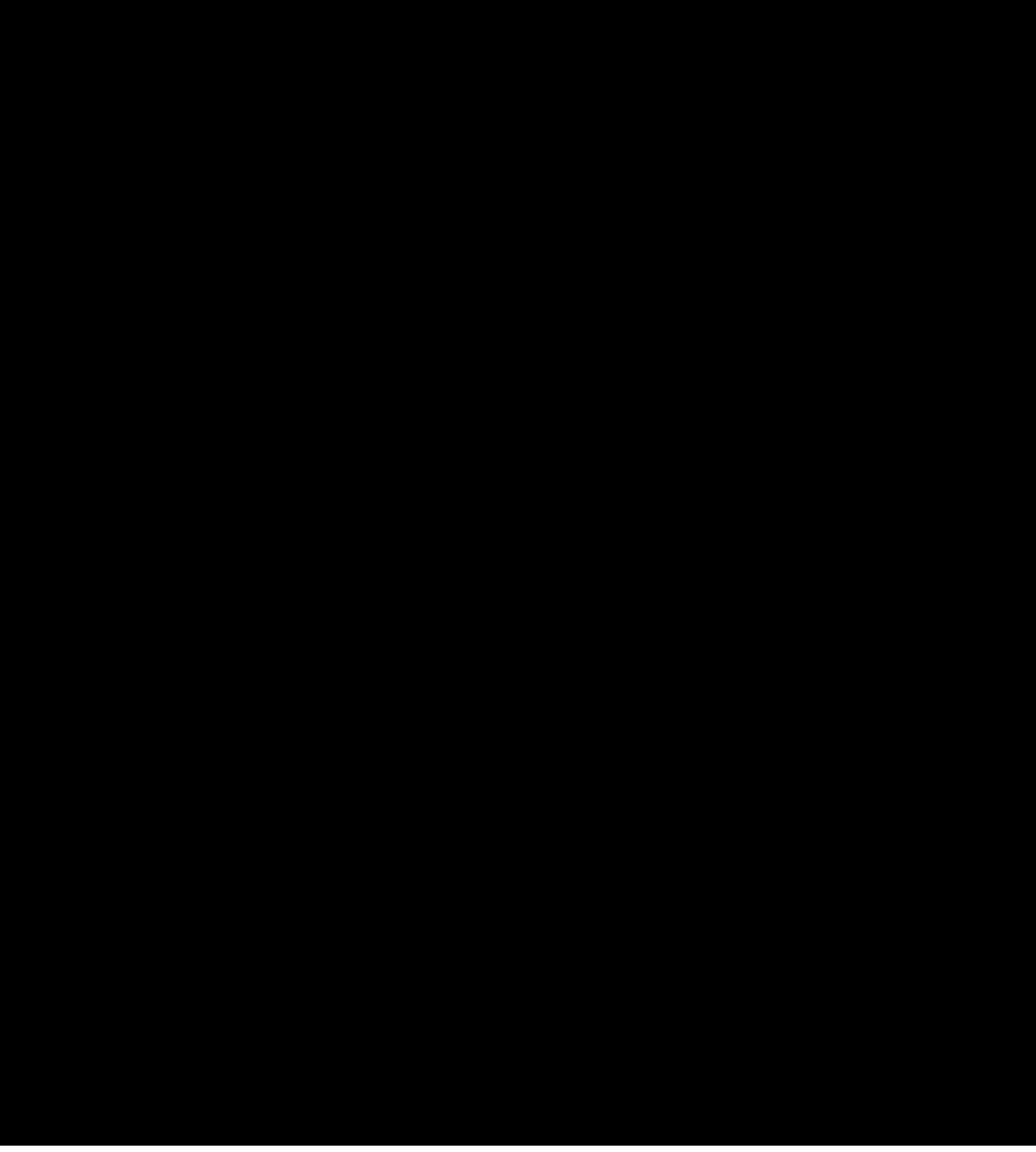




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PRODUCTS of DU PONT

**E. I. DU PONT DE NEMOURS & COMPANY (INC.)
WILMINGTON 98, DELAWARE**



advertising department

Better Things for Better Living
... through Chemistry

Introduction

THIS booklet contains information on chemicals and allied products manufactured and sold by E. I. DU PONT DE NEMOURS & COMPANY (INC.) and its subsidiaries.

Its purpose is to provide a convenient source of information on the properties, uses and other data for Du Pont products.

Descriptions of products are limited to the bare essentials. For more detailed information, contact main or branch offices of the departments, divisions or subsidiaries which market the products. The addresses of these offices are given on the first page of each department, division and subsidiary.

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Abbreviation

atm.....	atmosphere
bbl.....	barrel
°Be.....	degrees Baume
B.P.....	boiling point
°C.....	degrees Centigrade
cc.....	cubic centimeter
cm.....	centimeter
C.P.....	Chemically Pure
cu. ft.....	cubic foot
dia.....	diameter
°F.....	degrees Fahrenheit
fl. oz.....	fluid ounce
F.P.....	freezing point
ft.....	foot
ft-lb.....	foot-pound
g.....	gram
gal.....	gallon
g/l.....	gram per liter
g/ml.....	gram per milliliter
in.....	inch
l.....	liter
lb.....	pound
max.....	maximum
min.....	minimum
ml.....	milliliter
mm.....	millimeter
M.P.....	melting point
N.F.....	National Formulary
No.....	number
oz.....	ounce
pt.....	pint
qt.....	quart
sec.....	second
Sp.Gr. 1.5, 1.021, etc.....	specific gravity at 20°C. referred to water at 4°C.
Sp.Gr. 1.625 (15/15°C.), etc.....	specific gravity at 15°C. referred to water at 15°C.
sq. ft.....	square foot
sq. in.....	square inch
temp.....	temperature
U.S.P.....	United States Pharmacopoeia
wt.....	weight
yd.....	yard

Advertising Department, January 1961

ELASTOMER CHEMICALS DEPARTMENT

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PRospect 4-1000

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PLANTS:

Beaumont, Texas	Louisville, Kentucky
Carneys Point, New Jersey	Montague, Michigan

PRODUCTS

ACCELERATORS FOR NATURAL AND SYNTHETIC RUBBERS

#8 Rubber Accelerator: Formaldehyde-para-toluidene condensation product. Creamy white non-dusting powder; Sp. Gr. 1.11. **USE:** To accelerate and improve the vulcanization of natural and synthetic rubber. **CONTAINERS:** 125-lb. drums.

"808" Rubber Accelerator: Butyraldehyde-aniline condensation product. Amber liquid; Sp. Gr. 0.98. **USE:** To accelerate and improve the vulcanization of natural and synthetic rubber, especially for hard rubber. **CONTAINERS:** 425-lb. drums.

"833" Rubber Accelerator: Butyraldehyde-monobutylamine condensation product. Reddish-amber liquid; Sp. Gr. 0.86. **USE:** To accelerate and improve the vulcanization of natural and synthetic rubber, especially for neoprene cements. **CONTAINERS:** 225-lb. drums.

"552" Rubber Latex Accelerator: Piperidinium pentamethylene dithiocarbamate — $\text{CH}_2(\text{CH}_2)_4\text{NC}(\text{S})\text{SNH}_2(\text{CH}_2)_4\text{CH}_2$. A cream colored crystalline powder; Sp. Gr. 1.20; melts with decomposition at not lower than 167°C. **USE:** To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds; as peptizer or plasticizer for neoprene. **CONTAINERS:** 125-lb. drums.

Accelerator for "Viton": Hexamethylenediamine carbamate $+\text{H}_2\text{N}(\text{CH}_2)_6\text{NHCO}_2^-$. A white very fine powder; Sp. Gr. 1.15; Melting Pt. range 152°C.-155°C. **USE:** To accelerate and improve the vulcanization of "Viton" fluoroelastomer. **CONTAINERS:** 5-lb. drums.

"Barak" Rubber Accelerator: Dibutylammonium oleate, $(\text{C}_4\text{H}_9)_2\text{NH}_2\text{COO}(\text{C}_{17}\text{H}_{33})$. Dark amber liquid, Sp. Gr. 0.88. **USE:** As an activator for other rubber accelerators to improve the vulcanization of natural and synthetic rubber. **CONTAINERS:** 175-lb. drums.

Conac S Rubber Accelerator: N-Cyclohexyl-2-benzothiazole sulfenamide — $\text{C}_6\text{H}_5\text{SNCSNHCH}_2\text{C}_6\text{H}_5$. A cream colored powder; Sp. Gr. 1.27; M.P. 200-212°F. **USE:** To accelerate and improve the vulcanization of natural and synthetic rubber. **CONTAINER:** 50-lb. bags.

DOTG Rubber Accelerator: Di-ortho-tolylguanidine — $(\text{CH}_3\text{C}_6\text{H}_4\text{NH})\text{CNH}$. A white non-dusting powder; Sp. Gr. 1.10; M.P. 171°C. min. **USE:** To accelerate and improve the vulcanization of natural and synthetic rubber. **CONTAINER:** 100-lb. drums.

MBT(2-Mercaptobenzothiazole) — $\text{C}_6\text{H}_4\text{SC}(\text{SH})\text{N}$: Pale yellow powder; Sp. Gr. 1.50. **USE:** To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds. **CONTAINERS:** 50-lb. bags.

MBTS (2-Benzothiazolyl disulfide) — $(\text{C}_6\text{H}_4\text{SCN})_2\text{S}_2$: Pale yellow powder or grains; Sp. Gr. 1.54. **USE:** To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds. **CONTAINERS:** 50-lb. bags.

NA-22(2-Mercaptoimidazole) — $\text{CH}_2\text{CH}_2\text{NC}(\text{SH})\text{NH}$: A white powder; Sp. Gr. 1.42; M. P. not lower than 195°C. **USE:** To accelerate and improve the vulcanization of neoprene. **CONTAINERS:** 125-lb. drums.

ELASTOMER CHEMICALS DEPARTMENT

ANTIOXIDANTS, CHEMICALS

"Permalux" Neoprene Accelerator: Di-o-tolylguanidine salt of dicatéchol borate— $(\text{HOC}_6\text{H}_4\text{O})_2\text{BN}(\text{NHC}_6\text{H}_4\text{CH}_3)_2$. Light grayish brown powder; Sp. Gr. 1.27; F. P. not lower than 165°C. USE: To accelerate and improve the vulcanization of neoprene. A nondiscoloring antioxidant for natural and synthetic rubbers. CONTAINERS: 125-lb. drums.

"Tepidone" Rubber Accelerator: 47% water solution of sodium dibutylthiocarbamate— $(\text{C}_4\text{H}_9)_2\text{NC}(\text{S})\text{SNa}$. An amber liquid; Sp. Gr. 1.09. USE: To accelerate and improve the vulcanization of natural and synthetic rubber latex compounds. CONTAINERS: 440-lb. drums.

"Tetrone" A Rubber Accelerator: Dipentamethylene thiuram tetrasulfide— $[\text{CH}_2(\text{CH}_2)_4\text{NCS}]_2\text{S}_4$. Light gray powder; Sp. Gr. 1.53; M. P. not lower than 110°C. USE: To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds. CONTAINERS: 125-lb. drums.

"Thionex" Rubber Accelerator: Tetramethylthiuram monosulfide— $[(\text{CH}_3)_2\text{NCS}]_2\text{S}$. Lemon yellow powder or grains; Sp. Gr. 1.39; M. P. not lower than 105°C. USE: To accelerate the vulcanization of natural and synthetic rubbers. CONTAINERS: 50-lb. boxes.

Thiuram E Rubber Accelerator: Tetraethylthiuram disulfide— $[(\text{C}_2\text{H}_5)_2\text{NCS}]_2\text{S}_2$. White powder or grains; Sp. Gr. 1.30; M. P. not lower than 66°C. USE: To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds. CONTAINERS: 100-lb. drums.

Thiuram M Rubber Accelerator: Tetramethylthiuram disulfide— $[(\text{CH}_3)_2\text{NCS}]_2\text{S}_2$. White powder or grains; Sp. Gr. 1.41; M. P. not lower than 141°C. USE: To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds. CONTAINERS: 50-lb. boxes.

"Zenite" Rubber Accelerator: 90% zinc salt of 2-mercaptobenzothiazole— $[\text{C}_6\text{H}_4\text{SC}(\text{S})\text{N}]_2\text{Zn}$, and 10% inert hydrocarbon. A light cream colored, waxy powder; Sp. Gr. 1.53. USE: To accelerate and improve vulcanization of natural and synthetic rubber and latex compounds. CONTAINERS: 50-lb. bags.

"Zenite" A Rubber Accelerator: 97% zinc salt of 2-mercaptobenzothiazole (See "Zenite" above this page) and 3% Tetramethylthiuram monosulfide. (See "Thionex" above.) A light cream colored very fine non-dusting powder; Sp. Gr. 1.42. USE: To accelerate and improve the vulcanization of natural and synthetic rubber. CONTAINERS: 150-lb. drums.

"Zenite" Special—Rubber Accelerator: Zinc salt of 2-mercaptobenzothiazole (See "Zenite", this page, above). A light-cream colored powder; Sp. Gr. 1.68. USE: To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds. CONTAINERS: 50-lb. bags.

ANTIOXIDANTS FOR NATURAL AND SYNTHETIC RUBBER

"Akroflex" C Rubber Antioxidant: 35% diphenylpara-phenylenediamine— $\text{C}_6\text{H}_4(\text{NHC}_6\text{H}_5)_2$, and 65% phenyl-alpha-naphthylamine (See "Neozone" A, below). Dark gray waxy pellets; Sp. Gr. 1.23; F. P. not lower than 75°C.

USE: To improve the aging and service life of natural and synthetic rubbers; anti-crosslinking agent for SBR (styrene butadiene rubber). CONTAINERS: 250-lb. drums.

"Akroflex" CD Rubber Antioxidant: 35% diphenylpara-phenylenediamine (See "Akroflex" C, above), and 65% phenyl-beta-naphthylamine (See "Neozone" D, below). Dark gray pellets; Sp. Gr. 1.22. USE: To improve the aging and service life of natural and synthetic rubbers. CONTAINERS: 250-lb. drums.

"Antox" Rubber Antioxidant: Condensation product of butyraldehyde-aniline. Amber liquid; Sp. Gr. 1.04. USE: To improve the aging and service life of natural and synthetic rubbers. CONTAINERS: 275-lb. drums.

"Neozone" A Rubber Antioxidant: Phenyl-alpha-naphthylamine— $\text{C}_{10}\text{H}_7\text{NHC}_6\text{H}_5$. Yellow pellets which turn dark purple on exposure to air or light; Sp. Gr. 1.22; F. P. not lower than 50°C. USE: To improve the aging and service life of natural and synthetic rubbers. CONTAINERS: 250-lb. drums.

"Neozone" D Rubber Antioxidant: Phenyl-beta-naphthylamine— $\text{C}_{10}\text{H}_7\text{NHC}_6\text{H}_5$. Fine light gray powder; Sp. Gr. 1.24; F. P. not lower than 106°C. USE: To improve the aging and service life of natural and synthetic rubbers; stabilizer in manufacture of SBR. CONTAINERS: 160-lb. drums.

"Thermoflex" A Rubber Antioxidant: 25% di-paramethoxydiphenylamine— $(\text{CH}_3\text{OC}_6\text{H}_4)_2\text{NH}$, 25% diphenylpara-phenylenediamine— $\text{C}_6\text{H}_4(\text{NHC}_6\text{H}_5)_2$, and 50% phenyl-beta-naphthylamine— $\text{C}_{10}\text{H}_7\text{NHC}_6\text{H}_5$. Dark gray pellets; Sp. Gr. 1.21; F. P. not lower than 67°C. USE: Promote outstanding heat aging and flex life of natural and synthetic rubbers. CONTAINERS: 250-lb. drums.

"Zalba" Rubber Antioxidant: A hindered phenol. Amber colored viscous liquid; Sp. Gr. 0.94. USE: To improve aging and service life of natural and synthetic rubbers. Excellent nondiscoloring antioxidant for natural and synthetic rubbers and latex. A stabilizer for the manufacture of SBR. CONTAINERS: 50-lb. drums.

"Zalba" Special Rubber Antioxidant: A fortified hindered phenol; Yellow cream colored powder; Sp. Gr. 1.27. USE: To improve aging and service life of natural and synthetic rubbers. Excellent non-discoloring antioxidant for natural and synthetic rubbers and latex, a stabilizer for manufacture of SBR. CONTAINERS: 100-lb. drums.

MISCELLANEOUS CHEMICALS FOR NATURAL AND SYNTHETIC RUBBER

A. Rubber Latex Stabilizers and Mold Lubricants.

Aquarex D	Aquarex ME
Aquarex G	Aquarex NS
Aquarex L	Aquarex SMO
Aquarex MDL	Aquarex WAQ

"Aquarex" D Surface Active or Mold Release Agent: Sodium salts of sulfate mono-esters of a mixture of higher fatty alcohols consisting chiefly of the lauryl and myristyl derivatives of the type RSO_4Na . White powder; Sp. Gr. 1.33. USE: To improve the stability of latex mixtures and to prevent coagulation due to mechanical friction; in water solution as a mold lubricant. CONTAINERS: 100-lb. drums.

ELASTOMER CHEMICALS DEPARTMENT

MISCELLANEOUS CHEMICALS

"Aquarex" G Surface Active Agent: Water solution of sodium alkyl sulfonate of the type RSO_3Na . Clear amber liquid; Sp. Gr. 1.09. USE: In emulsion polymerization of synthetic elastomers and resins. CONTAINERS: 425-lb. drums.

"Aquarex" L Mold Release Agent: Ammonium salts of alkyl acid phosphates of the type $\text{RHPO}_3\text{ONH}_4$. Amber viscous paste; Sp. Gr. 1.01. USE: As a corrosion inhibiting mold lubricant. CONTAINERS: 400-lb. drums.

"Aquarex" MDL Surface Active or Mold Release Agent: Water paste of sodium salts of sulfate mono-esters of a mixture of higher fatty alcohols consisting chiefly of the lauryl and myristyl derivatives (See "Aquarex" D, above). Amber paste; Sp. Gr. 1.08. USE: A stabilizing and wetting agent for latex mixtures; in water solution as a mold lubricant. CONTAINERS: 375-lb. drums.

"Aquarex" ME Surface Active or Mold Release Agent: Sodium salts of sulfate mono-esters of a mixture of higher fatty alcohols consisting chiefly of the lauryl and myristyl derivatives (See "Aquarex" D, above). Creamy white powder; Sp. Gr. 1.06. USE: A stabilizing and wetting agent for latex mixtures and in water solution as a mold lubricant. CONTAINERS: 150-lb. drums.

"Aquarex" NS Surface Active Agent: Water solution of C-cetyl-betaine— $(\text{CH}_3)_3\text{N}^+\text{CH}(\text{C}_{18}\text{H}_{33})\text{COO}^-$. Brown slightly cloudy liquid; Sp. Gr. 1.05. USE: As a stabilizer for latex mixtures. Due to its amphoteric properties, it functions as a stabilizer in both acid and alkaline dispersions. CONTAINERS: 450-lb. drums.

"Aquarex" SMO Surface Active Agent: 33% Water solution of mono-sodium salt of sulfated methyl oleate— $\text{CH}_3(\text{CH}_2)_5\text{CH}(\text{SO}_3\text{Na})(\text{CH}_2)_7\text{COOCH}_3$. Reddish amber liquid; Sp. Gr. 1.08. USE: A surface conditioning agent for rubber latex and neoprene latex mixtures. CONTAINERS: 450-lb. drums.

"Aquarex" WAQ Surface Active or Mold Release Agent: A water solution of the sodium salts of the sulfate mono-esters of a mixture of higher fatty alcohols consisting chiefly of the lauryl and myristyl derivatives (See "Aquarex" D). Amber viscous liquid; Sp. Gr. 1.04. USE: A stabilizing and wetting agent for latex mixtures; diluted, as a mold lubricant. CONTAINERS: 400-lb. drums.

B. Rubber Peptizing and Reclaiming Agents.

Endor	RPA #3 Conc.
RPA #2	RPA #6
RPA #3	RR-10

"Endor" Rubber Peptizing Agent: Activated zinc salt of pentachlorothiophenol— $(\text{C}_6\text{Cl}_5\text{S})_2\text{Zn}$, and 80% inert filler. Grayish green powder; Sp. Gr. 2.39. USE: A peptizing agent for plasticizing natural rubber and all types of SBR (styrene butadiene rubber). CONTAINERS: 100-lb. drums.

RPA No. 2 Rubber Peptizing Agent: 33 $\frac{1}{3}$ % 2-naphthalenethiol— $\text{C}_{10}\text{H}_7\text{SH}$, and 66 $\frac{2}{3}$ % inert hydrocarbon. Light cream colored, waxy flakes; Sp. Gr. 0.92. USE: As a peptizing agent for natural and SBR. CONTAINERS: 50-lb. boxes.

RPA No. 3 Rubber Peptizing Agent: 36.5% xylene-thiols— $(\text{CH}_3)_2\text{C}_6\text{H}_3\text{SH}$, and 63.5% petroleum oil. Amber liquid; Sp. Gr. 0.91. USE: As a peptizing agent for natural and SBR; a reclaiming agent. CONTAINERS: 400-lb. drums.

RPA No. 3 Concentrated—Rubber Peptizing Agent: 71% xylene-thiols— $(\text{CH}_3)_2\text{C}_6\text{H}_3\text{SH}$, and 29% petroleum oil. Dark amber liquid; Sp. Gr. 1.04. USE: As a peptizing agent for natural and synthetic rubbers; as a rubber reclaiming agent. CONTAINERS: 450-lb. drums.

RPA No. 6 Rubber Peptizing Agent: 90% pentachlorothiophenol— $\text{C}_6\text{Cl}_5\text{SH}$, and 10% inert hydrocarbon. A light gray powder; Sp. Gr. 1.79. USE: As a peptizing agent for natural and SBR. CONTAINERS: 125-lb. drums.

RR-10 Reclaiming Chemical: Mixed dixylyl disulfides— $[(\text{CH}_3)_2\text{C}_6\text{H}_3]_2\text{S}_2$. Dark amber liquid; Sp. Gr. 1.05. USE: An agent for accelerating devulcanization of natural rubber, SBR (styrene butadiene rubber) and mixed scrap during the reclaiming process. CONTAINERS: 450-lb. drums.

C. Blowing Agents for Natural and Synthetic Rubber.

Unicel ND	Unicel S
Unicel NDX	

"Unicel" ND Rubber Blowing Agent: 42% di-N-nitrosopentamethylene-tetramine— $\text{NCH}_2\text{N}(\text{NO})\text{CH}_2\text{N}(\text{CH}_2)\text{CH}_2\text{N}(\text{NO})\text{CH}_2$, and 58% inert filler. Cream colored powder; Sp. Gr. 1.94. USE: A nondiscoloring blowing agent for manufacture of natural or synthetic rubber sponge. CONTAINERS: 100-lb. drums.

"Unicel" NDX Rubber Blowing Agent: 80% di-N-nitrosopentamethylene-tetramine—(See "Unicel" ND), and 20% inert filler. Cream colored spongy crumb; Sp. Gr. 1.40. USE: A nondiscoloring blowing agent for natural or synthetic rubber sponge. CONTAINERS: 100-lb. drums.

"Unicel" S Rubber Blowing Agent: 50% dispersion of finely divided sodium bicarbonate in oil. A cream colored, free flowing liquid; Sp. Gr. 1.30. USE: Blowing agent for manufacture of natural or synthetic rubber sponge. CONTAINERS: 500-lb. drums.

D. Organic Isocyanates.

"Hylene" M	"Hylene" T
"Hylene" M-50	"Hylene" TM
"Hylene" MP	"Hylene" TM-65

"Hylene" M Organic Isocyanate: Methylene bis (4-phenyl isocyanate)— $(\text{C}_6\text{H}_4\text{NCO})_2\text{CH}_2$. Pale yellow lumps; Sp. Gr. 1.20. USE: For making urethane adhesives and polymers. CONTAINERS: 45- and 500-lb. drums.

"Hylene" M-50 Organic Isocyanate: Methylene bis (4-phenyl isocyanate)— $(\text{C}_6\text{H}_4\text{NCO})_2\text{CH}_2$. 50% solution in monochlorobenzene; dark brown liquid; Sp. Gr. 1.16. USE: In elastomer based adhesives. CONTAINERS: 45- and 500-lb. drums.

"Hylene" MP Organic Isocyanate: Bis phenol adduct of methylene bis (4-phenyl isocyanate). Grayish white

ELASTOMER CHEMICALS DEPARTMENT

powder; water stable. USE: A bonding agent and adhesive assistant for adhering "Dacron" polyester fiber to rubber compositions in water emulsion or latex systems. CONTAINERS: 125-lb. drums.

"Hylene" T Organic Isocyanate: Toluene-2,4-diisocyanate— $\text{CH}_3\text{C}_6\text{H}_3(\text{NCO})_2$. Water white to pale yellow liquid; Sp. Gr. 1.22. USE: In manufacture of urethane foam, finishes, adhesives and rubbers. CONTAINERS: 45- and 500-lb. drums, tank trailers and tank cars.

"Hylene" TM Organic Isocyanate: 80% toluene-2,4-diisocyanate (See "Hylene" T) and 20% toluene-2,6-diisocyanate— $\text{CH}_3\text{C}_6\text{H}_3(\text{NCO})_2$. Sp. Gr. 1.22; water white to pale yellow liquid. USE: In manufacture of urethane foam, finishes, adhesives and rubbers. CONTAINERS: 45- and 500-lb. drums, tank trailers and tank cars.

"Hylene" TM-65 Organic Isocyanate: 65% toluene 2,4-diisocyanate, and 35% toluene 2,6-diisocyanate (See "Hylene" TM). Sp. Gr. 1.22. Water white to pale yellow liquid. USE: In manufacture of urethane foam, finishes, adhesives and rubbers. CONTAINERS: 45- and 500-lb. drums, tank trailers and tank cars.

E. Special Purpose Chemicals.

Copper Inhibitor 50	NBC
ELA	Polyac
Heliozone	Retarder W
Moca	

Copper Inhibitor 50: 50% disalicylalpropylenediamine— $\text{HOC}_6\text{H}_4\text{CHNCH}_2\text{CH}(\text{CH}_3)\text{NCHC}_6\text{H}_4\text{OH}$, and 50% aromatic solvent. Amber colored liquid; Sp. Gr. 0.99. USE: To prevent catalytic action of copper on oxidation of natural and synthetic rubbers. CONTAINERS: 250-lb. drums.

ELA—Elastomer Lubricating Agent: Mixture of phosphate esters. Light amber liquid; Sp. Gr. 0.99. USE: A lubricant for unvulcanized natural and synthetic rubber compositions. CONTAINERS: 425-lb. drums.

"Heliozone" Inhibitor: Blend of selected waxy materials. Pale yellow to buff color, waxy flakes; Sp. Gr. 0.90. USE: To retard sun checking and cracking of natural and synthetic rubbers. CONTAINERS: 50-lb. boxes.

"Moca" Curing Agent for Urethane Synthetic Rubbers: Methylene-bis-orthochloroaniline. Tan colored, coarsely ground lumps; Sp. Gr. 1.39. USE: Curing agent for "Adiprene" L urethane rubber, other urethane rubbers, and epoxy resins. CONTAINERS: 50-lb. drums.

NBC Sun or Ozone Cracking Inhibitor: Nickel dibutylthiocarbamate— $[(\text{C}_4\text{H}_9)_2\text{NC}(\text{S})\text{S}]_2\text{Ni}$. Dark green flakes; Sp. Gr. 1.26; M. P. not lower than 86°C. USE: To prevent cracking due to ozone of SBR (styrene butadiene rubber) stocks. Will improve heat resistance and retard discoloration of neoprene compounds. CONTAINERS: 250-lb. drums.

"Polyac" Butyl Rubber Conditioner: 25% poly-paradinitrosobenzene— $[\text{C}_6\text{H}_4(\text{NO})_2]_x$ —with an inert wax. Dark brown waxy pellets; Sp. Gr. 0.96. USE: A processing aid and accelerator of vulcanization for butyl rubber. CONTAINERS: 100-lb. drums.

Retarder W: Salicylic acid— $\text{HOC}_6\text{H}_4\text{COOH}$ —with a dispersing agent. Buff colored, non-dusty powder; Sp.

SYNTHETIC RUBBERS

Gr. 1.43. USE: To prevent premature curing of natural and synthetic rubbers; to activate blowing agents. CONTAINERS: 300-lb. drums.

COLORS FOR RUBBER

Rubber Dispersed Colors: USE: For coloring natural and synthetic rubber compounds. CONTAINERS: 50-lb. boxes.

SYNTHETIC RUBBERS

"Adiprene" C Urethane Rubber: Reaction product of a diisocyanate and a polyalkylene ether glycol. Amber colored solid in stick form; Sp. Gr. 1.07. USE: A synthetic rubber for products that must have exceptional abrasion resistance, high tensile strength and low temperature brittle point. CONTAINERS: 50-lb. drums.

"Adiprene" L-100 Liquid Urethane Rubber: Reaction product of a diisocyanate and a polyalkylene ether glycol. Honey colored liquid; viscosity 14,000 to 19,000 cps at 30°C.; Sp. Gr. 1.06. USE: A fluid elastomer which can be converted into a tough elastic solid rubber having excellent resistance to abrasion, oxidation and ozone. CONTAINERS: 450-lb. drums.

"Adiprene" L-167 Liquid Urethane Rubber: Reaction product of a diisocyanate and a polyalkylene ether glycol. Honey colored liquid; viscosity 6,000-8,000 cps at 30°C. Sp. Gr. 1.06. USE: A type of "Adiprene" L-100 which will give harder vulcanizates. Has excellent resistance to abrasion, oxidation and ozone. CONTAINERS: 450-lb. drums.

"Hypalon" 20 Synthetic Rubber—Chlorosulfonated Polyethylene: White chips; Sp. Gr. 1.10. USE: An elastomer for products which are oil resistant, unattacked by ozone, have excellent color stability and resistance to heat, weather and chemicals. CONTAINERS: 50-lb. bags or boxes.

"Hypalon" 30 Synthetic Rubber—Chlorosulfonated Polyethylene: White chips; Sp. Gr. 1.28. USE: A solution type material for protective and decorative coatings, a paint base. Coatings are resistant to weathering, ozone, many oils and chemicals. CONTAINERS: 50-lb. boxes.

"Hypalon" 40—Synthetic Rubber—Chlorosulfonated Polyethylene: White chips; Sp. Gr. 1.18. USE: An improved elastomer designed for ease in processing. Has excellent oil and heat resistance combined with exceptional color stability and weatherability. CONTAINERS: 50-lb. bags.

Neoprene Latices: Water emulsions of polymerized 2-chlorobutadiene 1,3. White, milky liquid. USE: For making dipped, impregnated and extruded products that must withstand action of oils, solvents, heat, oxidation and sunlight. CONTAINERS: 55-gal. drums, 3500-gal. tank trucks, 8000-gal. tank cars.

Type 60—59% solids; Sp. Gr. 1.12. A concentrated latex; chiefly for foamed products.

Type 400—50% solids; Sp. Gr. 1.15. General purpose where high modulus, good heat resistance, improved tear strength and exceptional ozone resistance are needed.

Type 571—50% solids; Sp. Gr. 1.10. General purpose use.

Type 572—50% solids; Sp. Gr. 1.11. Special for adhesives; high wet strength.

Type 601-A—59% solids; Sp. Gr. 1.12. A concentrated latex; general purpose use.

ELASTOMER CHEMICALS DEPARTMENT

SYNTHETIC RUBBERS

Type 635—58% solids; Sp. Gr. 1.12. A concentrated latex. Used in blends with other neoprenes to improve wet gel strength of films. Also for paper pulp additive.

Type 650—60% solids; Sp. Gr. 1.11. A concentrated form of Type 750. General purpose use where high solids are desired, particularly in dipped goods.

Type 735—37.5% solids; Sp. Gr. 1.08. Used in blends with other neoprenes to improve wet gel strength of films. Also for paper pulp addition.

Type 736—34.5% solids; Sp. Gr. 1.06. Especially stabilized for paper pulp addition.

Type 750—50% solids; Sp. Gr. 1.10. General purpose use, particularly in dipped goods where low modulus and excellent crystallization resistance is required.

Type 842-A—50% solids; Sp. Gr. 1.10. Products made from this type do not stiffen at low temperatures.

Type 950—50% solids; Sp. Gr. 1.10. A cationic latex; for treatment of fibrous materials.

Neoprene Type AC: Polymer of 2-chlorobutadiene 1,3. Creamy white chips; Sp. Gr. 1.23. USE: Chiefly for quick setting, high strength adhesive cements. CONTAINERS: 50-lb. bags.

Neoprene Type AD: Polymer of 2-chlorobutadiene 1,3. Creamy white chips; Sp. Gr. 1.23. USE: Chiefly for quick setting, high strength, solvent type adhesive cements. Greater viscosity and color stability than Type AC. CONTAINERS: 50-lb. bags.

Neoprene Type CG: Polymer of 2-chlorobutadiene 1,3. Amber chips; Sp. Gr. 1.23. USE: Chiefly for quick setting, high strength adhesive cements. CONTAINERS: 50-lb. bags.

Neoprene Type FB: Polymer of 2-chlorobutadiene 1,3. Dark brown putty-like solid of very low molecular weight; Sp. Gr. 1.23. USE: A vulcanizable plasticizer for neoprene and other synthetic elastomers; in cement applications which require a high solids-to-viscosity ratio; useful in preparation of caulks and sealants. CONTAINERS: 100-lb. fiber drums.

Neoprene Type GN: Polymer of 2-chlorobutadiene 1,3. Amber chips; Sp. Gr. 1.23. USE: General purpose for products that must withstand action of oils, solvents, heat, oxidation and sunlight. CONTAINERS: 50-lb. bags.

Neoprene Type GN-A: Polymer of 2-chlorobutadiene 1,3 containing a discoloring antioxidant. Amber chips; Sp. Gr. 1.23. USE: General purpose for products that must withstand action of oils, solvents, heat, oxidation and sunlight. CONTAINERS: 50-lb. bags.

Neoprene Type GRT: Polymer of 2-chlorobutadiene 1,3. Amber chips; Sp. Gr. 1.23. USE: For general purpose stocks requiring retention of building tack and flexibility of uncured stocks. Vulcanizates have superior resistance to hardening due to elastomer crystallization. CONTAINERS: 50-lb. bags.

Neoprene Type KNR: Polymer of 2-chlorobutadiene 1,3. Amber chips; Sp. Gr. 1.23. USE: Chiefly in paints and putties, for lining tanks and chemical equipment. CONTAINERS: 50-lb. bags.

Neoprene Type S: Polymer of 2-chlorobutadiene 1,3 containing a nondiscoloring antioxidant. Amber chips; Sp. Gr. 1.20. USE: Chiefly in crepe soles that resist softening and are resistant to oil and gasoline; as a stiffener for other neoprenes. CONTAINERS: 50-lb. bags.

Neoprene Type W: Polymer of 2-chlorobutadiene 1,3. Light amber to creamy white chips; Sp. Gr. 1.23. USE: General purpose neoprene having much greater storage stability, better processing characteristics and better color retention during cure than the "G" type neoprene. Does not contain sulfur or thiuram stabilizers. CONTAINERS: 50-lb. bags.

Neoprene Type WB: Polymer of 2-chlorobutadiene 1,3. Light amber to creamy white chips; Sp. Gr. 1.23. USE: For extruded goods where ultimate in surface appearance is required; highly desirable for calendered items which must be very smooth and resist shrinkage; similar to Type WX in crystallization resistance. CONTAINERS: 50-lb. bags.

Neoprene Type WD: Polymer of 2-chlorobutadiene 1,3. Light amber to creamy white chips; Sp. Gr. 1.23. USE: A high viscosity neoprene to be used in compounds designed for maximum crystallization resistance and low temperature flexibility. CONTAINERS: 50-lb. bags.

Neoprene Type WHV: Polymer of 2-chlorobutadiene 1,3. Light amber to creamy white chips; Sp. Gr. 1.23. USE: A Type W neoprene of high viscosity for use in compounds containing large amounts of fillers and oils. Can be used as a stiffener for other neoprenes. CONTAINERS: 50-lb. bags.

Neoprene Type WRT: Polymer of 2-chlorobutadiene 1,3. Light amber to creamy white chips; Sp. Gr. 1.25. USE: General purpose neoprene having superior resistance to hardening due to elastomer crystallization. Has excellent storage stability, processing properties and wide latitude in compounding. CONTAINERS: 50-lb. bags.

Neoprene Type WX: Polymer of 2-chlorobutadiene 1,3. Light amber to creamy white chips; Sp. Gr. 1.24. USE: General purpose neoprene having better resistance to stiffening due to crystallization than Type W. Has excellent storage stability, processing properties and wide latitude in compounding. CONTAINERS: 50-lb. bags.

"Viton" A Fluoroelastomer: White translucent solid; Sp. Gr. 1.82. USE: For rubber products that must withstand unusually high temperatures up to 600°F. in air, chemicals or most liquids. CONTAINERS: 50-lb. drums.

"Viton" A-HV Fluoroelastomer: White translucent solid; Sp. Gr. 1.82. USE: A type of "Viton" A with high viscosity for rubber products that must withstand unusually high temperatures up to 600°F. in air, chemicals or most liquids. CONTAINERS: 50-lb. drums.

"Viton" B Fluoroelastomer: White translucent solid. Sp. Gr. 1.86. USE: A type of "Viton" which has superior heat and chemical resistance. Used for rubber products that must withstand unusually high temperatures up to 600°F. in air, chemicals or most liquids. CONTAINERS: 50-lb. drums.

ELECTROCHEMICALS DEPARTMENT

GENERAL OFFICE: DuPont Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

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11900 Shaker Boulevard
8510 Ambassador Row
13000 West Seven Mile Road
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EXPORT DIVISION: DuPont Building Wilmington 98, Delaware

PRospect 4-5354

PRODUCTS

ACRYLIC PRODUCTS

"Lucite" Acrylic Resin (Methacrylate Polymers)— $[\text{CH}_2\text{C}(\text{CH}_3)\text{COOR}]_x$: A series of polymeric esters of methacrylic acid, in which R is methyl—"Lucite" 41 acrylic resin), ethyl—"Lucite" 42), n-butyl—"Lucite" 44), isobutyl—"Lucite" 45), or 50/50 n-butyl/isobutyl—"Lucite" 46). Water-white, transparent, thermoplastic resins in granular form. Densities from 1.19 to 1.05; soluble in a wide variety of polar and nonpolar solvents; compatible with many plasticizers. Excellent outdoor durability; chemically stable at elevated temperatures; resistant to water, aqueous salt solutions and moderately concentrated acids and alkalis. Use: Ingredients in lacquers and other finishes; aerosol "snow"; coatings for fabrics and hot melt adhesive compositions; impregnants for leather; modifiers for other resins, such as vinyls. CONTAINERS: 25- to 250-lb. fiber drums.

Methacrylate Monomers— $\text{CH}_2\text{C}(\text{CH}_3)\text{COOR}$ (Where R is Hydrogen, Methyl, Normal Butyl or Isobutyl): Water-white, mobile, volatile liquids containing a small amount of polymerization inhibitor. Use: Primarily in manufacture of acrylic polymers for paints and coatings, and as chemical intermediates. CONTAINERS: 5-gal. cans, 55-gal. drums, tank trucks, 8,000-gal. tank cars.

Methacrylate Polymers: [See "Lucite" Acrylic Resin (Methacrylate Polymers) above].

CERAMIC PRODUCTS

CERAMIC COLORS

Glass Enamels: A series of finely ground fluxes, basically lead borosilicate, intimately blended with colored ceramic pigments. Full range of colors available in paste (mixture of enamel with air drying or thermofluid squeegee medium) or dry form. Different grades give characteristics of acid resistance, alkali resistance, sulfide resistance, or low lead release to meet requirements for various uses. Firing range

1000°–1400°F. (537.8°–760°C.). Use: For fired-on labels and decorations on glassware, tumblers, milk bottles, beverage bottles, glass containers, illuminating ware, architectural glass, and signs. CONTAINERS: Dry colors, 25-, 50-, 100-, and 200-lb. fiber drums; paste colors, 100-lb. (5-gal.) steel pails; thermofluid enamels, 200-lb. (20-gal.) steel drums, 50-lb. (5-gal.) steel pails.

Gold Colors: Finely ground mixtures of low-melting glasses and gold-base pigments suitable for use over all standard glazes and in porcelain enamels. Firing range 1300°–1500°F. (704.4°–815.6°C.); Cones 018–014. Use: Same as Overglaze Colors, below. CONTAINERS: Under 25 lb., cans; 25 lb. or more, 25-lb. (3-gal.) drums.

Overglaze Colors: Finely ground mixtures of pigments and low-melting glasses suitable for use over standard glazes. Temperature range 1300°–1500°F. (704.4°–815.6°C.); Cones 018–014. Use: For bands, decalcomania, and similar decorative designs fired on china, pottery, terra cotta, tile, and other glazed ceramic surfaces. CONTAINERS: 25-, 100-, and 200-lb. drums.

ELECTRONIC MATERIALS

Conductive Silver Preparations: Specially compounded materials containing silver powder in a suitable vehicle, with or without ceramic flux; can be coated on base materials such as titanate bodies, mica, glass, porcelain, steatite, plastics, wood, cloth, and paper by stencil screening (squeegee), spraying, dipping, brushing, roller coating, banding wheel, or other suitable method. Types for air drying, baking at low temperatures, and firing at elevated temperatures. Use: To produce capacitor electrodes, ceramic to metal solder seals, electrical shields, surfaces of high conductivity on nonconductive materials; as a base for electroplating on ceramic and nonceramic surfaces. CONTAINERS: Paste, qt. and gal. cans; liquid, pt. and gal. bottles.

ELECTROCHEMICALS DEPARTMENT

CERAMIC PRODUCTS

Golds: Special preparations for applications where resistance to strong acids and migration is required. **USE:** For application on semiconductors (transistors, diodes, etc.), special capacitors, and printed circuits. **CONTAINERS:** 1-, 3-, 8-, 16-, 24-, and 32-oz. jars.

Palladiums and Platinum: Special preparations for application on green ceramic bases that are fired at extreme temperatures and allow multiple laminations of electroded ceramic sheets. **USE:** For capacitors. **CONTAINERS:** 1-, 3-, 8-, 16-, 24-, and 32-oz. jars.

Resistor Compositions: Specially treated semiconducting metal powders compounded with glass binders and temporary organic carriers. Can be applied to glass or ceramic surfaces by stencil screening (squeegee), spraying, brushing, or dipping. Firing range 1300°-1400°F. (700°-760°C.). Resistance of 500 to 10,000 ohms/square obtained with 1-mil film. Fired resistors have good reproducibility, low temperature and voltage coefficients, and stability to abrasion, moisture, and relatively high (257°F., 125°C.) ambient temperature. **USE:** To produce fired-on resistor components for electronic circuits. **CONTAINERS:** 1-, 3-, 8-, 16-, 24-, and 32-oz. jars.

Silver Powder—Ag: Finely divided silver powder, 99+ % silver; with or without added flux. **USE:** Preparation of Conductive Coating Materials (above). **CONTAINERS:** 5-oz. bottles; qt. and gal. cans.

FLUXES (FRITS)

Fluxes: Low-melting glasses. Firing temperatures 950°-1300°F. (510°-704.4°C.). **USE:** To lower fusing temperatures of refractory materials. **CONTAINERS:** 25-, 50-, 100-, and 200-lb. drums.

Porcelain for Aluminum: Vitreous frits which fire at 970°-1000°F. (521.1°-537.8°C.) for use on aluminum and its alloys. Enamels have relative resistance to impact, chemical attack, thermal shock, and salt water corrosion. **USE:** For imparting chemical resistance, dielectric strength, and color to aluminum and its alloys. **CONTAINERS:** 25-, 50-, 100-, and 200-lb. fiber drums.

LUSTERS

Luster Colors: Liquids containing resinates or similar organic compounds of various base or precious metals. **USE:** For decorating pottery, glass, tile, china, terra cotta, and similar ceramic surfaces with fired-on iridescent coatings. **CONTAINERS:** Precious metal lusters, 500-g. (1-lb.) bottles; base metal lusters, gal. (7-lb.) bottles.

MEDIUMS AND THINNERS

Squeegee Mediums (Squeegee Oils): Specially compounded organic vehicles for paste colors applied by stencil screen. **USE:** As vehicles for paste colors for stencil application on glassware, tumblers, bottles, porcelain enamel, pottery, etc. **CONTAINERS:** 55-gal. drums.

Thinners: Essential oils and mixtures thereof for use with precious metal preparations. **USE:** Thinning and extending precious metal preparations used in decorating ceramicware. **CONTAINERS:** Lb. bottles.

PIGMENTS

Body Stains: Finely ground calcined oxide pigments for coloring ceramic bodies. **USE:** As colors or designs for tile, terra cotta, chinaware, etc., where the pigment becomes part of the ceramic body. **CONTAINERS:** 25-, 50-, 100-, and 200-lb. fiber drums.

Enamel Pigments: Finely ground calcined oxide mixtures. Maximum firing temperature 1600°F. (871.1°C.). **USE:** For coloring vitreous enamels for application on sheet steel, cast iron, or aluminum. **CONTAINERS:** 25-, 50-, 100-, and 200-lb. drums.

Glaze Stains: Finely ground calcined oxides for use in coloring ceramic glazes. **USE:** Coloring glaze coatings for pottery, tile, terra cotta, and similar ceramicware. **CONTAINERS:** 25-, 50-, 100-, and 200-lb. fiber drums.

Special Pigments for Plastics, Paper and Textiles: Finely ground calcined oxides having good color stability to light and temperature. **USE:** For coloring nylon, paper, plastics, and textiles, where special stability is desirable. Available also as wet milled slurries. **CONTAINERS:** 25-, 50-, 100-, and 200-lb. drums.

Underglaze Pigments: Finely ground calcined oxides for colored designs beneath the glaze on ceramic surfaces. **USE:** For coloring or decorating pottery, tile, terra cotta, and similar unglazed ceramic surfaces. **CONTAINERS:** 25-, 50-, 100-, and 200-lb. fiber drums.

PRECIOUS METAL COMPOSITIONS (DECORATIVE)

Brown Gold (Gold Powders)—Au: Finely divided, dry preparations containing gold and usually a flux. For dry application by dusting on a tacky surface to produce heavy gold deposits which have good stability and long-wearing qualities. **USE:** Decorating china, pottery, tile, etc., with fired-on gold designs; for increasing gold content of other gold preparations. **CONTAINERS:** 1-, 3-, 8-, 16-, 24-, and 32-oz. jars.

Burnish Golds: Finely divided gold powder combined with suitable fluxes and incorporated into low viscosity vehicles for brush application. Produce heavy, stable, long-wearing gold deposits. Fire to a matt surface; the true gold surface texture developed by burnishing. Platinum burnishes for white ware are also available. **USE:** Decorating high grade china and ceramicware with fired-on gold designs. **CONTAINERS:** 1-, 3-, 8-, 16-, 24-, and 32-oz. jars.

Liquid Bright Golds: Liquid compositions suitable for application by brushing, stamping, spraying, or stenciling (squeegee). Fire to a bright mirror surface. **USE:** Decorating pottery, glass, tile, terra cotta, enameled metals, etc., with fired-on, bright gold designs. **CONTAINERS:** 100- and 500-g. bottles.

Liquid Bright Palladiums or Platinum: Liquid compositions suitable for application by brushing, stamping, spraying, or stenciling (squeegee). Fire to a silvery mirror surface. **USE:** Decorating pottery, glass, tile, terra cotta, enameled metals, etc., with fired-on, bright silvery designs. **CONTAINERS:** 100- and 500-g. bottles.

ELECTROCHEMICALS DEPARTMENT

Paste Golds: Heavy compositions of powdered gold and flux suitable for printing by tissue transfer method or can be diluted for brush application. Fire to matt surface which is burnished to develop true gold texture. **USE:** Decorating high grade chinaware and other ceramic surfaces with gold designs; for decorating ceramicware with encrusted or Roman gold designs. **CONTAINERS:** 1-, 3-, 8-, 16-, 24-, and 32-oz. jars.

CHLORINE PRODUCTS

"Artic" Methyl Chloride: (See Methyl Chloride, below.)

Chloroform (Trichloromethane)— CHCl_3 : A colorless, sweet smelling liquid; soluble in alcohol and ether; slightly soluble in water. Available in two grades. **CONTAINERS:** 55-gal. drums (660-lb.); tank cars.

HYDROCARBON STABILIZED GRADE: Boiling range 140.7°–142.5°F. (60.4°–61.4°C). Weight per gal., 12.43 lb. at 20°C. **USE:** As a solvent for fats, oils, and other organic compounds; for spotting textiles; as a freezing-point depressant for fire-extinguisher fluids; in the manufacture of dyes and chemicals, e.g., difluorochloromethane.

ETHANOL STABILIZED GRADE: Boiling range, 20th drop 139.1°F. (59.5°C.) min.; 95% 142.7°F. (61.5°C.). Weight per gal., 12.375 lb. at 20°C. **USE:** As a solvent for fats, oils, and other organic compounds; in the manufacture of chemicals, dyes, and pharmaceuticals.

Methyl Chloride (Chloromethane, Monochloromethane)— CH_3Cl : At ordinary temperatures a colorless gas with ethereal odor; slightly soluble in water; soluble in most organic solvents; stable; moderately flammable; high latent heat and other physical properties desirable in refrigerants. Available in Refrigeration Grade and Technical Grade. Boiling range (95%) —12.3° to —10.5°F. (—24.5° to —23.6°C.). Weight per gal. 7.68 lb. at 20°C.

REFRIGERATION GRADE ("ARTIC" METHYL CHLORIDE): **USE:** As a refrigerant; as a fluid for thermometric and thermostatic equipment. **CONTAINERS:** 100-lb. cylinders; multiunit tank cars of 15 (1,300 lb. each) tanks.

TECHNICAL GRADE: **USE:** As a methylating agent in organic synthesis; as a low temperature solvent; as a solvent and propellant in aerosols. **CONTAINERS:** 100-lb. cylinders; multiunit tank cars of 15 (1,300 lb. each) tanks; single unit tank cars.

Methylene Chloride (Dichloromethane, Methylene Dichloride)— CH_2Cl_2 : A colorless liquid with faintly ethereal odor; practically nonflammable and nonexplosive. Available in Refrigeration Grade for both solvent and refrigerant uses. Boiling range 103.1°–104.5°F. (39.5°–40.3°C.). Weight per gal. 11.07 lb. at 20°C. **USE:** As a refrigerant in centrifugal compressors; for chemical synthesis; as a low temperature heat transfer liquid; as a paint remover; as a cold cleaner; as a solvent for animal and vegetable oil extraction; as a solvent in aerosols; for dewaxing of lubricating oils; and as a solvent for cellulose acetates. **CONTAINERS:** 55-gal. drums (600-lb.); tank trucks; tank cars.

CHLORINE PRODUCTS

Perchlorethylene (Tetrachloroethylene)— C_2Cl_4 : Clear, colorless liquid with ethereal odor; practically insoluble in water; soluble in alcohol and ether; nonflammable and nonexplosive; stable in the presence of moisture. Available in Dry Cleaning Grade and Technical Grade. Boiling range 248.9°–251.6°F. (120.5°–122.0°C.). Weight per gal. 13.55 lb. at 20°C. **USE:** Spotting and dry cleaning fluid; textile cleaning; vapor degreasing solvent; cold cleaner; drying agent for metals and other solids; vermifuge; as a solvent for rubber, waxes, tar, paraffin, and gums; as a heat transfer medium; for chemical synthesis. **CONTAINERS:** 55-gal. drums (700-lb.); tank trucks; tank cars.

"Perclene" Perchlorethylene: (See Perchlorethylene, above.)

Tetrachloroethane (1,1,2,2-Tetrachloroethane, Acetylene Tetrachloride)— $\text{C}_2\text{H}_2\text{Cl}_4$: A clear, very slightly yellowish, heavy liquid; soluble in alcohol and ether; nonflammable and nonexplosive; unstable in the presence of moisture; vapors toxic. B. P. approximately 295.3°F. (146.3°C.). Weight per gal. 13.32 lb. at 20°C. **USE:** As a solvent in special preparations; in chemical synthesis. **CONTAINERS:** 55-gal. drums (700-lb.).

Trichlorethylene— C_2HCl_3 : Clear, colorless liquid with ethereal odor; miscible with alcohol, ether, and most organic solvents; practically insoluble in water; stable in the presence of moisture; practically nonflammable and nonexplosive. Available in four grades. **CONTAINERS:** 55-gal. drums (660-lb.); tank trucks; tank cars.

TECHNICAL AND DRY CLEANING GRADE ("TRICLEN" TRICHLORETHYLENE): Boiling range 187.9°–190.4°F. (86.6°–88.0°C.). Weight per gal. 12.19 lb. at 20°C. **USE:** Dry cleaning and spotting fluid; textile cleaning; solvent for adhesives and waxes; asphaltic paint remover; for coating paper; organic reagent.

METAL DEGREASING GRADE ("TRICLEN" D TRICHLORETHYLENE): Boiling range 187.5°–190.2°F. (86.4°–87.9°C.). Weight per gal. 12.16 lb. at 20°C. **USE:** Specifically stabilized for vapor degreasing of metals; low temperature heat transfer liquid.

PAINT GRADE ("TRICLEN" PAINT GRADE TRICHLORETHYLENE): Boiling range 185.7°–190.2°F. (85.4°–87.9°C.). Weight per gal. 12.14 lb. at 20°C. **USE:** As a thinner for paints based on several types of alkyd resins; on asphaltic materials, including "Gilsonite"; and on some specialty resins, such as certain acrylics, epoxy esters, chlorinated rubbers, ethyl cellulose, etc.

EXTRACTION GRADE: Boiling range 187.7°–189.5°F. (86.5°–87.5°C.). Weight per gal. 12.23 lb. at 20°C. **USE:** Extraction solvent for many waxes, resins, and alkaloids.

FREEZING-POINT DEPRESSANT GRADE: Weight per gal. 12.21 lb. at 20°C. **USE:** Freezing-point depressant for fire extinguisher fluids.

"Triclene" Trichlorethylene: (See Trichlorethylene.)

ELECTROPLATING PRODUCTS

Addition Agent 774: Pale amber, slightly viscous water solution of organic wetting agents; faint amine odor; mildly alkaline. **USE:** As antipitting agent with "Coppalyte" plating salts; as antifume agent with "Durobrite" zinc plating. **CONTAINERS:** 9-lb. bottles (1-gal.), 125-lb. fiber drums.

ELECTROCHEMICALS DEPARTMENT

ELECTROPLATING PRODUCTS

"Cadalyte" Bright Dip: Clear colorless liquid; corrosive; miscible with water. Diluted with 15-30 parts of water for dipping solution. USE: To brighten cadmium deposits by "bright dipping;" to add a tarnish-resistant film on surface of cadmium plate. CONTAINERS: 5-lb. bottles, 120-lb. carboys.

"Cadalyte" Brightener: Light brown, fine powder. USE: In cyanide cadmium plating baths for maintaining high covering power of bath and brilliancy and uniformity of deposits. CONTAINERS: 5-, 25-, and 50-lb. pails and containers.

"Cadalyte" Maintenance Compound: Buff colored, free flowing, fine powder; water soluble. Contains "Cadalyte" Brightener and sodium cyanide in proportions consumed in cadmium plating. USE: Replenishing "Cadalyte" cadmium plating baths. CONTAINERS: 100-lb. steel or fiber drums.

"Cadalyte" Plating Salts: Reddish-brown powder consisting of a mixture of sodium cyanide, cadmium oxide, and brighteners; contains approximately 19.2% cadmium. Free flowing, water soluble, stable. USE: To prepare a cadmium plating bath which deposits cadmium in a bright, ductile, adherent form on iron and steel to prevent rusting and corrosion. CONTAINERS: 50-lb. steel or fiber drums.

Carbonate Remover: Fine, white, free flowing powder. Slightly soluble in water. USE: To remove carbonates from cyanide plating solutions. CONTAINERS: 100-lb. bags.

Copper Cyanide (Cuprous Cyanide)— $\text{Cu}_2(\text{CN})_2$: A creamy white powder; insoluble in water; soluble in sodium cyanide and potassium cyanide solutions; copper content min. 70%; cyanogen content min. 28.5%. USE: In copper and brass cyanide electroplating solutions. CONTAINERS: 100-lb. packages.

Copper Plating Addition Agents: (See Addition Agent 774, "Coppalyte" Addition Agent 1085, "Dacolyte" Addition Agent, and Elchem 1393 and Elchem 1396 Addition Agents.)

"Coppalyte" Addition Agent 1085: Pale amber, slightly viscous water solution of organic wetting agents; faint amine odor; mildly alkaline. USE: As antipitting agent for "Coppalyte" copper plating. CONTAINERS: 9-lb. bottles (1-gal.), 125-lb. fiber drums.

"Coppalyte" Plating Salt—Potassium Formulation: White powder; gives alkaline solution in water. Copper content (as Cu) min. 25.4%; free KCN min. 1.25%, max. 3.0%. USE: For preparing copper plating baths for producing smooth, bright, heavy, adherent coatings of copper on steel die castings, wire, and other parts. CONTAINERS: 100-lb. packages.

"Coppalyte" Plating Salt—Sodium Formulation: White powder; gives alkaline solution in water. Copper content (as Cu) min. 27.0%; free NaCN min. 0.4%, max. 2.0%. USE: For preparing copper plating baths for producing smooth, bright, heavy, adherent coatings of copper on steel die castings, wire, and other parts. CONTAINERS: 100-lb. packages.

"Dacolyte" Addition Agent: Dark brown, amorphous, fine powder; sharp odor; water soluble. USE: In acid copper plating solutions for heavy deposits only. Assists in producing smooth copper deposits free from nodules or trees. CONTAINERS: 5-, 10-, 25-, and 50-lb. fiber containers.

"Durobrite" Addition Agent 26: Amber liquid. USE: As a brightening agent in cyanide zinc barrel plating baths. CONTAINERS: 40-lb. pails.

"Durobrite" Addition Agent 309: Clear amber liquid containing approximately 10% solids. USE: Brightening agent for cyanide zinc plating. Improves covering power by extending the bright plating range to low current density areas. CONTAINERS: 40-lb. steel pails.

Elchem 1393 Addition Agent: Grayish-white powder containing potassium cyanide and selenium; slightly hygroscopic, water soluble, stable. USE: As a brightening agent in cyanide copper plating baths. CONTAINERS: 25- and 100-lb. fiber containers.

Elchem 1396 Addition Agent: Dark amber liquid; mildly alkaline. USE: As a brightener and antipitting agent in cyanide copper plating baths. CONTAINERS: 40-lb. pails; 125-lb. packages.

Elchem 1442 Addition Agent: Mildly alkaline solution containing potassium cyanide and selenium. USE: As a brightening agent and leveling agent in cyanide copper plating baths. CONTAINERS: 40-lb. pails; 450-lb. drums.

Electropolishing Solution: A clear, dark amber, corrosive liquid; glycolic acid-sulfuric acid formulation; acid content 85%; F.P. below 32°F. (0°C.); nonflammable and nonexplosive; miscible with water. USE: In electropolishing stainless steel over a wide current density range. CONTAINERS: 162-lb. carboys.

Halogen Tin Addition Agent 2 Special: Clear colorless liquid; miscible with water; stable. USE: In Halogen Tin Plating Process for brightening and controlling deposit. CONTAINERS: 420-lb. lined drums.

Halogen Tin Plating Process: An acid tin plating process, using bivalent tin salts and tin anodes. USE: For continuous tin plating on steel strip, and copper or steel wire. Bath permits high current densities and rapid plating.

Polysulfide: A sodium sulfuret similar to Liver of Sulfur, having a sodium base instead of a potassium base. Yellow to yellow-green powder; sodium polysulfide content min. 56%; total sulfur min. 50.7%. USE: For coloring copper and brass; for stripping copper plated deposits; for purifying cyanide plating solutions. CONTAINERS: 60-lb. cases (six 10-lb. tins), 100-lb. drums.

Potassium-Copper Cyanide Double Salt: White crystalline complex salt of copper cyanide and potassium cyanide. USE: For preparing and maintaining cyanide copper plating baths based on potassium cyanide. CONTAINERS: 100-lb. drums.

Potassium Cyanide: (See Page 12.)

ELECTROCHEMICALS DEPARTMENT

Sodium-Copper Cyanide Double Salt: White crystalline complex salt of copper cyanide and sodium cyanide. **USE:** For preparing and maintaining cyanide copper plating baths based on sodium cyanide. **CONTAINERS:** 100-lb. fiber drums.

Sodium Cyanide: (See Page 12.)

Sodium Sulfocyanide: (See Page 12.)

Zinc Cyanide— $Zn(CN)_2$: Stable white powder; soluble in alkalis, sodium and potassium cyanide solutions, and in dilute mineral acids with production of hydrogen cyanide. Insoluble in water and alcohol; decomposes on heating. Zinc content min. 55%; cyanogen content min. 40%. **USE:** In zinc and brass electroplating solutions; as a chemical reagent. **CONTAINERS:** 100-lb. packages.

Zinc Plating Addition Agents: See "Durobrite" Addition Agent 26, "Durobrite" Addition Agent 309, "Zin-O-Lyte" Addition Agent O, and "Zin-O-Lyte" Brighteners.

"Zin-O-Lyte" Addition Agent O: A heavy gray powder containing molybdenum; soluble in caustic soda solution; insoluble in water. **USE:** In make up and maintenance of bright zinc plating baths prepared with "Zin-O-Lyte" salts. **CONTAINERS:** 5-, 25-, and 50-lb. fiber containers.

"Zin-O-Lyte" Brighteners: Organic addition agents; fine powder; water soluble. **USE:** In cyanide zinc plating baths to increase deposit brightness and current efficiencies of the bath and widen the bright current density range. **CONTAINERS:** 50- and 100-lb. packages.

"Zin-O-Lyte" Salts: Fine white powder containing sodium cyanide and other chemicals in proportions required for the "Zin-O-Lyte" zinc plating bath. **USE:** In preparing "Zin-O-Lyte" zinc plating baths for still or barrel operation. **CONTAINERS:** 100-lb. steel or fiber drums.

"Zin-O-Lyte" Special Zinc Barrel Brightener: Organic addition agent; fine powder; water-soluble. **USE:** In cyanide zinc barrel plating solutions to increase deposit brightness and current efficiencies. **CONTAINERS:** 50- and 100-lb. containers.

FURAN PRODUCTS

1,4-Dichlorobutane (Tetramethylene Chloride, DCB) — $Cl(CH_2)_4Cl$: A colorless liquid with mild, pleasant odor; miscible with most organic solvents; practically insoluble in water. Boiling range 307.4°–312.8°F. (153°–156°C.); F. P. —35.1°F. (—37.3°C.); flash point (TAG Closed Cup) 104°F. (40°C.); Sp. Gr. 1.135–1.141; weight per gal. 9.46 lb. **USE:** Reactive chlorine atoms permit its use in organic syntheses. **CONTAINERS:** 9-lb. (1-gal.) containers; 45- and 500-lb. drums; tank cars.

Furan (Furfurane)— $(CH)_4O$: A highly volatile, colorless liquid, miscible with most organic solvents; slightly soluble in water. Boiling range 80.6°–89.6°F. (27°–32°C.); F. P. —122.2°F. (—85.68°C.); flash point (TAG Closed Cup) —32°F. (—35.6°C.); Sp. Gr. 0.935–0.938; weight per gal.

FURAN PRODUCTS AND PEROXYGEN PRODUCTS

7.8 lb.; stabilized with 0.05% hydroquinone. **USE:** Furan is highly reactive by either substitution or addition. Lends itself to pharmaceutical and industrial syntheses. **CONTAINERS:** 7-lb. (1-gal.) containers; 35- and 400-lb. drums; tank cars.

Tetrahydrofuran (Tetramethylene Oxide, THF)— $(CH_2)_4O$: A clear, colorless liquid with ether-like odor; readily miscible with organic solvents and water. Boiling range 149°–152.6°F. (65°–67°C.); F. P. —163.3°F. (—108.52°C.); flash point (TAG Closed Cup) 6°F. (—14.5°C.); Sp. Gr. 0.885–0.888; weight per gal. 7.4 lb.; stabilized with 0.025% BHA (butylated hydroxyanisole); other stabilizers available. **USE:** Excellent solvent for high molecular weight polyvinyl chloride resins and vinylidene chloride copolymers for coatings, films, adhesives, printing inks, etc.; unique reaction solvent for carrying out Grignard, sodium acetylide, and reduction reactions, including hydrogenations; component in paint remover and cold cleaner formulations; chemical synthesis; and extraction processes. **CONTAINERS:** 7-lb. (1-gal.) containers; 35- and 400-lb. drums; tank trucks; tank cars.

PEROXYGEN PRODUCTS

"Albone" Hydrogen Peroxide: (See Hydrogen Peroxide, below.)

Calcium Peroxide— CaO_2 : Cream colored powder containing CaO_2 and CaO ; CaO_2 content min. 75%; active oxygen content min. 16.65% by weight. Liberates oxygen slowly in water suspensions; decomposed by heat; insoluble in alcohol, ether, and ammonia; soluble in weak acids or ammonium salt solutions. **USE:** In manufacture of pharmaceutical and cosmetic preparations; general oxidation applications. **CONTAINERS:** 25- and 100-lb. fiber drums.

Hydrogen Peroxide— H_2O_2 : Colorless, clear liquid; slightly sharp odor; miscible in all properties with water; liberates oxygen when decomposed.

"ALBONE" 35 HYDROGEN PEROXIDE: H_2O_2 content 35% by weight; active oxygen 16.5% by weight; weight per gal. 9.44 lb. at 20°C.; density 1.133 at 20°C.; pH (Beckman meter) 3.4–3.8. **USE:** Bleaching of textiles such as cotton, wool, silk, rayon, linen, and blends of these fibers with synthetic fibers; bleaching of wood pulps such as cold soda, groundwood, kraft, sulfite, and recovered pulp; bleaching of practically all vegetable and animal fibers, fur, straw, etc.; fur carroting; purification of metals solutions; treatment and sterilization of starch, glue, etc.; bleaching of wood panels and furniture; bleaching of oils and fats; oxidation of vat dyes; dilution for pharmaceutical and cosmetic uses; general oxidizing reactions, and for the manufacture of alkaline earth peroxides and organic peroxides such as methyl ethyl ketone peroxide; in epoxidation and hydroxylation reactions; as a polymerization catalyst for unsaturated monomers such as butadiene, styrene, etc.; as a viscosity control agent for starch and cellulose derivatives; in electroplating; as a gasifying agent for manufacture of such materials as foam rubber. **CONTAINERS:** 120-lb. carboys; 250-lb. drums; tank trucks for delivery in Boston, New York, and Philadelphia areas; 4,000-, 6,000-, and 8,000-gal. tank cars.

ELECTROCHEMICALS DEPARTMENT

SODIUM AND CYANIDE PRODUCTS

Hydrogen Peroxide (Continued)

"ALBONE" 50 HYDROGEN PEROXIDE: H_2O_2 content 50% by weight; active oxygen 23.5% by weight; weight per gal. 9.98 lb. at 20°C.; density 1.196 at 20°C.; pH (Beckman meter) 2.4-2.7. USE: Same as "Albone" 35, above. CONTAINERS: 265-lb. drums; tank trucks for delivery in Boston, New York, and Philadelphia areas; 4,000-, 6,000-, and 8,000-gal. tank cars.

HYDROGEN PEROXIDE 70%: H_2O_2 content 70% by weight; active oxygen 33% by weight; weight per gal. 10.7 lb. at 25°C.; density 1.288 g./cc. at 20°C.; pH (Beckman meter) approx. 1.1. USE: In organic syntheses where minimum water content is required. CONTAINERS: 285-lb. double compartment drums; 275-lb. single compartment drums (for carload or truckload shipment only); 4,000-, 6,000-, and 8,000-gal. tank cars.

HYDROGEN PEROXIDE 90%: H_2O_2 content 90% by weight; active oxygen 42.3% by weight; weight per gal. 11.61 lb. at 20°C.; density 1.3913 g./cc. at 20°C. USE: Monopropellant and fuel oxidant. CONTAINERS: 285-lb. double compartment drums; 275-lb. single compartment drums (for carload or truckload shipment only); 4,000-, 6,000-, and 8,000-gal. tank cars.

"PERONE" 35 HYDROGEN PEROXIDE: Physical properties similar to those of "Albone" 35, above. USES: In electronic applications and other specialty uses. CONTAINERS: 120-lb. carboys; 250-lb. drums; tank trucks for delivery in Boston, New York, and Philadelphia areas; 4,000-, 6,000-, and 8,000-gal. tank cars.

"PERONE" 50 HYDROGEN PEROXIDE: Physical properties similar to those of "Albone" 50, above. USES: In electronic applications and other specialty uses. CONTAINERS: 265-lb. drums; tank trucks for delivery in Boston, New York, and Philadelphia areas; 4,000-, 6,000-, and 8,000-gal. tank cars.

"Oxone" Monopersulfate Compound: An acidic, white, granular, free flowing solid containing the active ingredient potassium peroxymonosulfate; readily soluble in water; 1% solution has pH of 2-3. Minimum active oxygen content 4.5%. Strong oxidizing agent. USE: For manufacture of dry laundry bleaches, detergent-bleach washing compounds, scouring powders, plastic dishware cleaners, and metal cleaners; preparation of hair wave neutralizers and pharmaceuticals; general oxidizing reactions. CONTAINERS: 50-lb. multiwall bags.

"Perdiox" Sodium Borate Perhydrate: A free flowing, white powder; dissolves readily in water to produce mildly alkaline peroxide solution. Equivalent $NaBO_3 \cdot H_2O$ content min. 96.6%; active oxygen content min. 15.5%. USE: For preparation of dentifrices and hair wave neutralizers; bleaching; oxidation of dyes; stain remover for plastic dishes. CONTAINERS: 125-lb. fiber drums.

"Perone" Hydrogen Peroxide: (See Hydrogen Peroxide.)

Sodium Borate Perhydrate: (See "Perdiox" Sodium Borate Perhydrate, above.)

Sodium Perborate Tetrahydrate— $NaBO_3 \cdot 4H_2O$: Technical and N. F. Grades. An alkaline, white powder, soluble in water and acid solutions; in water, gives slightly alkaline solution containing hydrogen peroxide and borate; active oxygen content min. 10%; sodium perborate content min. 96.2%; Technical Grade passes 20 mesh screen. USE: Bleaching textiles; oxidizing agent for vat colors; assistant to textile detergents; constituent of dentifrices and pharmaceuticals; ingredient in dry laundry bleach powders and plastic dishware stain removers; polymerization catalyst. CONTAINERS: 100-lb. multiwall bags; 250-lb. fiber drums.

Sodium Peroxide— Na_2O_2 : Pale yellow, beadlike solid; stable when dry; readily dissolves in cold water to form alkaline hydrogen peroxide solution. Na_2O_2 content min. 96%; active oxygen content approximately 20% by weight.

TECHNICAL GRADE ("SOLOZONE" SODIUM PEROXIDE DFF): Dustless, free flowing; bulk density approx. 95 lb./cu. ft.; melting point above 450°C.; in water solution releases 103% of its weight as caustic soda. USE: Bleaching of wood pulps such as groundwood, cold soda, kraft, sulfite, and recovered pulp; bleaching cotton knit goods; purification of metal salts; manufacture of inorganic and organic peroxides such as benzoyl peroxide; general oxidizing agent. CONTAINERS: 75-lb. pails; 400-lb. drums.

CALORIFIC GRADE: All passes 28 mesh. Meets A. C. S. specifications. USE: For calorific determinations. CONTAINERS: 65-lb. pails.

"Solozone" Sodium Peroxide: (See Sodium Peroxide.)

Zinc Peroxide— ZnO_2 : Fine, grit free, white powder composed of zinc peroxide and zinc oxide; ZnO_2 content min. 57.82%; active oxygen content min. 9.5% by weight. Technical Grade. Insoluble in water; dissolves readily in acid media to form hydrogen peroxide solution. USE: For manufacture of deodorants, dusting powders, ointments, bleaching creams, and foot powders. CONTAINERS: 100-lb. drums.

SODIUM AND CYANIDE PRODUCTS

Case Hardener: (See Cyanide Mixtures.)

Copper Cyanide: (See Page 9.)

Cyanide-Chloride Mixtures 75%, 45%, and 30%: (See Cyanide Mixtures.)

Cyanide Mixtures (Cyanide-Chloride Mixtures, Case Hardener): White fused slabs 3 in. x $1\frac{3}{4}$ in. x 1 in. (approximately 3 oz.) or granular form. USE: Case hardening of steel. CONTAINERS: 100-lb. cases (containing twenty 5-lb. steel, ten 10-lb. steel, or four 25-lb. fiber containers); 100- and 200-lb. steel drums.

75% CYANIDE-CHLORIDE MIXTURE: Sodium cyanide content min. 75%, sodium chloride min. 12%, sodium carbonate max. 13%. F. P. approx. 1094°F. (590°C.); Sp. Gr. 1.74 at 77°F. (25°C.), 1.26 at 1580°F. (860°C.).

ELECTROCHEMICALS DEPARTMENT

Cyanide Mixtures (Continued)

45% CYANIDE-CHLORIDE MIXTURE: Sodium cyanide content min. 45%, sodium chloride min. 45%, sodium carbonate max. 10%. F.P. approx. 1247°F. (675°C.); Sp. Gr. 1.91 at 77°F. (25°C.), 1.37 at 1580°F. (860°C.).

30% CASE HARDENER: Sodium cyanide content min. 30%; sodium chloride min. 25%, max. 35%; sodium carbonate max. 45%. F.P. approx. 1090°F. (587°C.); Sp. Gr. 2.12 at 77°F. (25°C.), 1.52 at 1562°F. (850°C.).

"Cyanobrik" Sodium Cyanide: Briquette form. (See Sodium Cyanide 97%, below.)

"Cyanogran" M Sodium Cyanide: Granular form. (See Sodium Cyanide 97%, below.)

Hydrogen Cyanide (Hydrocyanic Acid; Prussic Acid) —HCN: A clear, colorless liquid containing 99.5% min. HCN. Odor of bitter almonds. Vapors extremely poisonous. Miscible with water and most organic solvents. Spec. gr. 0.714 at 5°C., 0.695 at 18°C.; b.p. 25.7°C.; f.p. —13.3°C. USES: Chemical syntheses. CONTAINERS: 5,000-gal. tank cars.

Potassium—K: Soft silvery metal; extremely reactive; M.P. 147°F. (63.7°C.); B.P. 1400°F. (760°C.). Available in ½-oz. sticks (1½ in. x 1 in.) and 1-, 2¼-, and 4¼-lb. bricks. USE: Laboratory reagent; preparation of inorganic potassium compounds such as oxide, peroxide, or cyanide; in organic reactions involving condensation, dehalogenation, reduction, and polymerization. CONTAINERS: 1-lb. tins (boxed) with inside glass bottles containing ½-oz. sticks; 25-lb. pails of bricks.

Potassium-Copper Cyanide Double Salt: (See Page 9.)

Potassium Cyanide—KCN: A white, granular, poisonous chemical; contains 98% min. potassium cyanide. USE: In high speed copper and silver plating processes; with sodium cyanide for cyanide nitriding. CONTAINERS: 100-lb. steel drums.

Sodium—Na: A silvery white metal; soft and ductile; extremely reactive; M.P. 208°F. (97.8°C.); B.P. 1638°F. (882°C.); weight at M.P. 59.4 lb./cu. ft. (solid); inert toward dry petroleum ether, toluene, kerosene, naphtha, and other hydrocarbon liquids but reacts vigorously with water. Supplied in 1-, 2½-, 5-, and 12½-lb. bricks; contains 0.04% calcium max. and 0.005% chloride max. USE: In manufacture of indigo and dye intermediates, chemicals, perfumes, and drugs; as a "scavenger" and deoxidizer in metal melting and refining; metal descaling; and as a heat transfer medium. CONTAINERS: 50-lb. cases (two 25-lb. pails of 1- or 2½-lb. bricks), 100-lb. cases (ten 10-lb. tins of 2½-lb. bricks), 220-, 280-, and 290-lb. drums (1-, 2½-, 5-, or 12½-lb. bricks), 400-lb. nonreturnable drums (fused sodium), and 78,000-lb. tank cars.

Sodium-Copper Cyanide Double Salt: (See Page 10.)

Sodium Cyanide 97%—NaCN: A white solid fused in 1-oz. briquettes ("Cyanobrik" sodium cyanide) and in granular form ("Cyanogran" M sodium cyanide): M.P. 1040°F. (560°C.); B.P. 2732°F. (1500°C.). Sodium cyanide content—97% min. USE: Heat treating of steel; in electro-

plating; in cleaning of metal, including neutralizing after pickling; in fumigation; unhairing of hides; for manufacture of indigo, dye intermediates and other chemical compounds; in the extraction of gold, silver, zinc, and lead from ores. CONTAINERS: 100- and 200-lb. drums.

Sodium Monoxide—Na₂O: Light gray, fine, spherical particles. Usually contains a small amount of free sodium (1%-2%) and may contain a small amount of sodium peroxide (1%-2%). USE: As a condensing or polymerizing agent in organic reactions; as a dehydrating agent. CONTAINERS: 60-lb. pails; 350-lb. steel drums.

Sodium Sulfocyanide (Sodium Thiocyanate)—NaCNS: Available in anhydrous form and as solution. USE: In electroplating, textile printing, processing of color film, preparation of sulfocyanide compounds.

ANHYDROUS: Grayish-white granules; NaCNS content min. 98%; soluble in water and alcohol; M.P. 549°F. (287°C.). CONTAINERS: 25- and 100-lb. fiber drums.

SOLUTION: Aqueous solution of high purity; colorless; NaCNS content min. 47% (sold on basis of 100% NaCNS). CONTAINERS: 500-lb. steel drums.

Zinc Cyanide: (See Page 10.)

VINYL PRODUCTS

"Elvacet" Polyvinyl Acetate Emulsion: Viscous, milk-white water dispersions of polyvinyl acetate or of copolymers of polyvinyl acetate which can be diluted with water. Films or coatings formed by the evaporation of water are thermoplastic, grease resistant and, in some cases, water resistant; they exhibit excellent adhesion to a wide variety of materials. The emulsions possess the desirable properties of high solids content at workable viscosity and ease of application from a water medium which eliminates the need for expensive and flammable solvents. Weight per gal. approx. 9.2 lb. "Elvacet" is available in the following grades:

Grade	Type	Viscosity of Emulsion (Brookfield) poises	Solids Content
80-900	Homopolymer	8-10	55% min.
81-900	Homopolymer	8.5-10	55% min.
81-1600	Homopolymer	15-17	55% min.
81-3300	Homopolymer	30-35	55% min.
84-1100	Homopolymer	9-13	54%-56%
1423	Copolymer	9-15	55% min.
1440	Homopolymer	8-15	54%-56%

USE: Paint vehicles; adhesive base materials for cellophane, wood, paper, cloth, ceramics, leather, cork, and metals; binders for paper pulp, sawdust, leather scrap, sand, clay, nonwoven fibers, pigments, and cement; textile finishes and sizes; paper coatings for greaseproofing and heat-sealing. CONTAINERS: 45-lb. steel pails; 500-lb. steel drums; 500-lb. fiber drums; 19,000- to 32,000-lb. tank trucks; 37,000- and 75,000-lb. tank cars.

ELECTROCHEMICALS DEPARTMENT

VINYL PRODUCTS

"Elvacet" Polyvinyl Acetate Solution ("Elvacet" 60-05): Colorless, odorless synthetic resin available as a 60% solution in methanol. The resin is thermoplastic, stable to light and heat, soluble in a number of organic solvents and compatible with many resins and plasticizers. Because of its strong adhesion to most types of surfaces, and excellent heat-sealing properties, polyvinyl acetate is widely used in adhesive and binder applications. **USE:** Adhesive and binder; vehicle for metallic pigments; protective coatings on metal; heat-seal applications; greaseproofing; stiffening and permanent sizing. **CONTAINERS:** 38-lb. pails, 400-lb. drums.

"Elvanol" Polyvinyl Alcohol: Water-soluble synthetic resin; white to creamy-white powder; odorless; pH 6-8; density 1.21-1.31 at 20°C. Available in 8 grades covering various degrees of hydrolysis in three viscosities (high, medium, and low).

Grade	Viscosity of 4% Water Solution at 20°C.	% Hydrolysis
	(cp)	
72-60	55-65	99 -100
72-51	45-55	97.7- 98.4
50-42	35-45	87 - 89
71-30	28-32	99 -100
71-24	23-28	97.7- 98.4
52-22	21-25	87 - 89
70-05	4-6	99 -100
51-05	4-6	88 - 89

Polyvinyl alcohol solutions are stable over long periods of time. Films and coatings from these solutions are exceedingly tough, colorless, unaffected by all oils, greases, fats, hydrocarbons and most organic solvents, and possess a high degree of impermeability to gases and air. **USE:** Textile warp size; size for nylon and rayon knitting yarns; pigmented paper coating binder; greaseproofing paper; paper size; top

size on paperboard for high gloss printing; wet strength paper laminating adhesive; nonblocking, remoistenable adhesive; adhesive and binder for leather, cloth, nonwoven fabrics, and paper; pigment binder; temporary protective coatings; molded products; emulsifying agents; emulsion stabilizer and thickener; photosensitive films; chemical intermediate. **CONTAINERS:** 10- and 25-lb. fiber cartons; 50-lb. multiwall bags; 100-lb. fiber drums.

"Elvax" Vinyl Resins: Highly wax-compatible, amorphous polymers. Translucent, white, 1/8" diameter, free-flowing pellets. Supplied in two basic compositions—one for hot-melt adhesive and coating formulation, the other for toughening waxes. Viscosities (at 30°C., 0.25% in toluene) 0.77 cp. and 0.85 cp., respectively. Readily soluble in waxes, various low molecular weight resins, and rosin esters; insoluble in aqueous mixtures and most polar solvents; density at 30°C., 0.95; extensibility 700% at break. **USES:** As a wax additive, improves toughness, reduces flaking, improves heat-seal bond strength. "Elvax"-wax coatings used for improved wax overwrap and tough, heat-sealable, sheet-waxed carton-board which retains low moisture vapor transmission, even after creasing. In laminating formulations for paper to paper and paper to cellophane, polyethylene, polystyrene, "Mylar" Polyester Film, or other plastic films, and to metal foils; as a base for hot-melt adhesives; as a low dielectric component in potting compounds. **CONTAINERS:** 50-lb. bags.

Vinyl Acetate—CH₃COOCH=CH₂: An extremely pure monomer for polymerization or copolymerization reactions. A flammable, volatile, highly reactive liquid with a pleasant odor. As shipped, it is stabilized with hydroquinone or phenothiazine. Boiling range 72.3°-73.0°C. (162.1°-163.4°F.); Sp. Gr. 0.9335-0.9345. **USE:** Monomer for polymerization or copolymerization reactions employing suspension, emulsion, or solution techniques; chemical intermediate. **CONTAINERS:** 375-lb. steel drums; 4,000-gal. tank trucks; 8,000- and 10,000-gal. tank cars.

EXPLOSIVES DEPARTMENT

GENERAL OFFICE: Nemours Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

DISTRICT OFFICES:

Explosives Sales:

Birmingham 13, Alabama Chicago 46, Illinois Denver 2, Colorado Duluth 2, Minnesota Huntington 1, West Virginia Joplin, Missouri New York 1, New York Pittsburgh 22, Pennsylvania Seattle 1, Washington	No. 9 Office Park, Mountain Brook 7250 North Cicero Avenue, Lincolnwood (Chicago Calls) INdependence 3-7250; (Others) Midland Savings Building, 444 Seventeenth Street Hartley Building, 742 East Superior Street West Virginia Building, Fourth Avenue and Ninth Street First National Building, 402 Main Street 4700 Empire State Building, 350 Fifth Avenue One Gateway Center 1127 Washington Building	TRemont 9-0466 ORchard 5-1010 MAin 3-1253 RAndolph 4-8593 JAckson 5-5124 MAyfair 4-5060 LOngacre 3-6400 ATlantic 1-7777 MAin 3-8830
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Chemical Sales:

Boston 10, Massachusetts Charlotte 1, North Carolina Chicago 46, Illinois Cleveland 20, Ohio Houston 27, Texas Los Angeles 58, California New York 1, New York	140 Federal Street 427 West Fourth Street 7250 North Cicero Avenue, Lincolnwood (Chicago Calls) INdependence 3-7250; (Others) 11900 Shaker Boulevard 3202 Wesleyan Street 2930 East 44th Street 4700 Empire State Building, 350 Fifth Avenue	HAncock 6-1724 FRanklin 5-5561 ORchard 5-1010 LOngacre 1-5070 MOhawk 7-9197 LUdlow 2-6464 LOngacre 3-6400
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PLANTS:

NAME OF PLANT	RAILWAY STATION	MAIL ADDRESS
Barksdale	Barksdale, Wisconsin	Barksdale, Wisconsin
Belin	{ Moosic, Pennsylvania (L.C.L.) Hillside Junction, Pennsylvania (C.L.&L.C.L.) }	Moosic, Pennsylvania
Birmingham	Mineral Springs, Alabama	Watson, Alabama
Carl Junction	Carl Junction, Missouri	Carl Junction, Missouri
Carneys Point	Carneys Point, New Jersey	Penns Grove, New Jersey
Du Pont	Du Pont, Washington	Du Pont, Washington
Louviers	Louviers, Colorado	Louviers, Colorado
Pompton Lakes	Pompton Lakes, New Jersey	Pompton Lakes, New Jersey
Potomac River	Martinsburg, West Virginia	Martinsburg, West Virginia
Repauno	Gibbstown, New Jersey	Gibbstown, New Jersey
Seneca	Seneca, Illinois	Seneca, Illinois

EXPLOSIVES SALES

PRODUCTS

*INDICATES RESALE PRODUCTS

BLASTING SUPPLIES AND ACCESSORIES

Blasting Caps: Small aluminum cylinders, closed at one end and loaded with a charge of fulminating compound, which is exploded by the spit or sparks from safety fuse. Furnished in two strengths: No. 6 and No. 8; No. 8 being the stronger. USE: For firing high explosives with safety fuse. CONTAINERS: 10, 25 and 100 caps per box.

Blasting Caps, Electric: No. 6 and No. 8 strengths, designed to be exploded by electric current. Nylon plastic insulated copper or iron wires. Lengths of wires range from 4 ft. up for copper and from 4 to 20 ft. for iron. USE: For firing high explosives electrically. CONTAINERS: 25 and 50 per carton.

Blasting Caps, "Acudet" Electric Delay: Similar to electric blasting caps but having time intervals of 275 to 1100 milliseconds (approximately) between periods. USE: For shots to be fired in rotation with a single set of wiring and with one application of electric current. CONTAINERS: 25 and 50 per carton.

Blasting Caps, Electric MS Delay: Similar to delay blasting caps but having time intervals of 25, 50 or 100 milliseconds (approximately) between periods. CONTAINERS: 25 and 50 per carton.

Blasting Caps, Electric "SSS" Seismograph: (See "SSS" Seismograph Electric Blasting Caps.)

EXPLOSIVES DEPARTMENT

***Blasting Galvanometer:** A small direct reading ohmmeter contained in a leather case. **USE:** To determine resistances of electric blasting caps, electric squibs, leading wire and the completed blasting circuit.

***Blasting Machines:** Used for the generation of current for the firing of electric blasting caps, electric squibs, etc. Types of machines are as follows:

	Rated Capacity		
	Str. Par.	Par. Series	Series
*CD-12-1	NR	NR	30
*CD-32-1	30	480	125
*CD-48-1	60	1200	200
*No. 10 Twist	NR	NR	10
*Permissible Multiple Type	NR	NR	10
*Permissible Multiple Type	NR	NR	20
*Pushdown No. 30	NR	150	30
*Pushdown No. 50	NR	250	50

NR = Not Recommended

***Blasting Switch:** Used for the power firing of blasts. Especially designed from the standpoints of safety and reliability.

***Cap Crimper (No. 4):** Makes waterproof crimp on a cap when a smooth surface fuse is used. Equipped with fuse cutter.

***Cap Crimper, Superior:** Bench type cap crimper which produces waterproof crimp. Hand or foot operated. Equipped with fuse cutter.

***Connecting Wire:** No. 20 and No. 22 gauge copper wire with plastic or paraffin coated cotton insulation. **USE:** To connect an electric blasting cap of one hole to another hole when the attached wires are not long enough.

Detonators (Fuses and Primers): (See Blasting Caps.)

"Elcord" Delay Units: Employed with "Nitramon" S in seismic prospecting. Permit matching ground velocities in the range 5,000-10,000 ft. per sec. **USE:** To minimize "ghost" reflections and improve signal-to-noise ratio.

*Fuse Lighters

Hot Wire: Similar to toy sparkler. Has black powder composition on an iron wire.

***Ignitacord and Thermalite Ignitacord:** Cordlike materials which burn with a hot external flame. Used for igniting fuse so as to obtain rotational firing.

Lead Spitter: A tube of lead filled with black powder.

Master: Device for lighting two to six fuses simultaneously.

***Quarrycord:** Similar to Ignitacord but specially constructed to burn at a speed of about one foot per second. Used for igniting fuse in multiple blockhole secondary blasting with the added feature of remote firing. Ideal

*Fuse Lighters (Continued)

for use in thunderstorm season and not affected by stray currents.

Safety Match: Short paper tube coated at one end with match composition. The lighter is slipped over end of fuse and ignited by a match or striking with match-box cover.

Jet Tappers: Shaped charges for tapping open-hearth steel furnaces. **CONTAINERS:** 20 per carton.

***Leading Wire:** No. 16 gauge solid copper wire, insulated with plastic or rubber composition (waterproof) or cotton coated with paraffin (dampproof). **USE:** As connecting source of electric current to blasting cap circuit. **CONTAINERS:** 125-, 250- and 500-ft. lengths.

***Portable Magazines:** Sectional steel construction; made in various sizes from 5 to 40 ton capacity. **USE:** For storing high explosives, blasting powder and blasting caps.

†"Primacord" Detonating Fuse: Consists of a fabric tube about 0.21 in. in diameter, filled with pentaerythrite tetranitrate (PETN), a high explosive. Detonates with plain or electric blasting cap at a velocity of 20,300 ft. per second. Four types: Plain, Reinforced, Plastic Reinforced and Plastic Wire Countered. **USE:** For firing large blasts and deep well drill holes. **CONTAINERS:** Spools containing 500 or 1,000 ft.

†"Primacord" MS Connectors: Device for insertion into "Primacord" lines. **USE:** To provide delays of approximately 0.005, 0.009 or 0.017 second. **CONTAINERS:** 50 per tube, 500 per carton.

***Rheostat:** An electric resistance bridge, having six binding posts and five different units of resistance wire between. **USE:** To determine when a given blasting machine is working at its rated capacity.

***Safety Fuse (Bickford's Fuse):** Consists of a core of A type black powder enclosed in several wrappings of jute and cotton threads with waterproofing asphalt type layers between the wraps. Many different types and brands are available. **USE:** For single blasts with black powder; for firing other explosives in conjunction with a blasting cap.

***Sectioning Switch:** Used as a safety switch in blasting lines for power firing circuits.

Squib, Electric: An aluminum cylinder containing a deflagrating charge ignited by an electric current. **USE:** For firing pellet and blasting powder electrically.

"SSS" Seismograph Electric Blasting Caps: **USE:** Especially developed for shooting explosive charges in oil prospecting. No time lag between severance of bridge wire and firing of the cap. **CONTAINERS:** 5, 10, 25 and 50 per carton depending on wire length.

***Tamping Bags:** Heavy kraft paper bags, glued with waterproof cement; sizes from 1½ to 7 in. in diameter and 8 to 24 in. in length. **USE:** To hold sand, clay, etc., for stemming (confining) the charges of explosives in boreholes. **CONTAINERS:** Bale lots of 5,000.

†Trademark of The Ensign-Bickford Company.

EXPLOSIVES DEPARTMENT

***Votometer:** A combined blasting galvanometer, stray current detector and AC-DC voltmeter. USE: Serves the same purposes as the Blasting Galvanometer and offers a means for guarding against stray currents of a magnitude which would be hazardous in electric blastings. It also offers a means of checking line voltages in power blasting circuits.

EXPLOSIVES

Black Sporting Powder: A uniformly dense black powder manufactured in four granulations—Fg, FFg, FFFg and FFFFg ranging respectively from coarse to fine. USE: The Fg or coarse grain is used for loading large capacity cartridges; the FFg or intermediate grain for medium capacity cartridges and the FFFg, FFFFg or fine grain for small capacity cartridges or general shotgun shooting. CONTAINERS: Each size is packed in 1-lb. metal canisters and 25-lb. metal kegs.

Blasting Gelatin (S.N.G.): Solidified nitroglycerin. A rubbery, elastic substance, resembling printers' rolls or art gum in appearance. It is the strongest commercial explosive. USE: In shooting oil wells. CONTAINERS: 28.5-lb. (10-qt.) and 57-lb. (20-qt.) cases, 50-lb. cases for use other than in oil wells.

Blasting Powder (Saltpeter or A Blasting Powder): A composition of potassium nitrate, charcoal and sulfur. Available in a wide range of grain sizes. USE: For fireworks; for blasting dimension stone and architectural stone; for quarrying slate; used in safety fuses. CONTAINERS: 25-lb. kegs.

Blasting Powder (Soda or B Blasting Powder): A composition of sodium nitrate, charcoal and sulfur. Available in a wide range of grain sizes. USE: For coal mining (principally); for construction work when dry; for clay mining and open pit ore mining. CONTAINERS: 25-lb. kegs.

Ditching Dynamite: A 50% straight dynamite, especially packed so that it will have the greatest possible uniformity, cartridge for cartridge, and will give the best results in propagation ditching.

"Extra" Dynamite: Ammonia dynamites ranging from 115 to 172 cartridges ($1\frac{1}{4}$ x 8 in.) per 50-lb. case. Available in both "high" and "low" velocity types. USE: In mining soft ores, limestone, gypsum, salt, clay, etc. In quarrying as top loads in well drill holes and as blockhole charges in secondary blasting.

Gelatin Dynamite (Straight Gelatin): A plastic, highly water resistant, dense explosive furnished in grades from 20 to 90% strengths. USE: For blasting in wet boreholes; for submarine blasting and blasting in quarries; for tunneling, shaft sinking and mining hard, tough materials.

"Gelex" Dynamites: Semigelatin dynamites having plasticity and water resistance between the dynamites and true gelatins. USE: In mining metallic ores, gypsum, limestone and in quarrying.

Gypsum A Dynamite: A modified "Extra" dynamite. USE: Especially designed for mining gypsum.

"Hi-Cap" Dynamite: A series of low cost ammonia dynamites, ranging from 120 to 150 cartridges per 50-lb. case in the $1\frac{1}{4}$ x 8 in. size. USE: In mining and quarrying the softer ores and materials such as limestone, gypsum, salt, clay, etc.

"Hi-Velocity" Gelatin: A low density straight gelatin which has the property of always exploding at a very high velocity. This is not the case with most gelatins, which have a low velocity unless strongly confined in a borehole or detonated by a straight 60% primer. USE: Oil, gas and water well shooting, submarine blasting, mudcapping.

"Hi-Velocity" Seismograph 60% Gelatin: A straight gelatin especially designed and packaged for use in seismic prospecting. Recommended for deep hole work and lengthy water exposures. Offered in plain or Fast-Coupler cartridges.

Loggers' Powders: 15 to 30% strengths. USE: Blasting stumps for the logging industry in the Pacific Northwest.

Nitroglycerin— $C_3H_5(NO_3)_3$: An oily liquid; Sp. Gr. approximately 1.6. USE: Essential ingredient in all DuPont dynamites; sold to drug trade in alcohol solution or with French chalk or sugar of milk to be used for medicinal purposes.

Pellet Powder (Soda or B Blasting Powder): An improved deflagrating explosive. USE: In mining coal where permissibles are not needed. Made in two grades in cylinders 2 in. long, with a central perforation of $\frac{3}{8}$ in. Four of these cylinders are placed end to end and wrapped in paraffined paper to form cartridges. Available in diameters from $1\frac{1}{4}$ to 2 in.

Permissible Explosives: Explosives which have been tested by U. S. Bureau of Mines and passed as safe for blasting in gaseous and dusty mines if used in accordance with certain specified conditions.

"Duobel" Explosives: High velocity permissibles furnished in five grades based upon velocity and cartridge count. USE: For mining coal where lump coal is not a factor.

"Gelobel" Explosives: Gelatin and semigelatin type permissibles; high density and high water resistance. USE: For coal mining where high strength, high velocity, concentration of charge and water resistance are desired.

"Lump Coal" C Explosives: A product with a very low velocity of detonation. USE: For coal mining where maximum production of large size coal is desired.

"Lump Coal" CC Explosives: A low velocity permissible similar to "Lump Coal" C except that due to slight change in the ingredients it can be manufactured in smaller diameter cartridges. USE: For coal mining where maximum production of large size coal is desired.

"Monobel" Explosives: Low velocity permissibles; furnished in six grades based upon velocity and cartridge count. USE: For mining coal especially where lump is desired.

"Red Cross" "Extra" Dynamite: High density, general purpose ammonia dynamites of 20 to 60% strengths. USE: For quarrying, stripping, agricultural and general construction work.

EXPLOSIVES DEPARTMENT

"Red Cross" F.R. Dynamites: Four grades of dynamite (based upon strengths) with free-running characteristics (F.R.). Designed for use in sprung holes and adapted for replacing black powder in quarrying and in blasting soft rock. CONTAINERS: 50-lb. case containing four 12½-lb. bags.

"Seismex" Dynamite: An ammonia dynamite for seismic prospecting. Low cost but not recommended for water depths over 200 feet, with immediate shooting, or for any type of "sleeper" work if water is present. Offered in plain or Fast-Coupler cartridges.

"Seismex" PW Dynamite: An ammonia dynamite for seismic prospecting in shallow-hole patterns. Very low cost but has water resistance sufficient only for work that is loaded and shot on the same day. Offered in plain or Fast-Coupler cartridges.

"Seismogel" Gelatin: A straight gelatin dynamite designed and packaged for use in seismic prospecting when water conditions are only moderately severe. Offered in plain or Fast-Coupler cartridges. The latter provide a convenient means for assembling a rigid column of explosive.

Special Gelatin Dynamite (Ammonia Gelatin): A plastic, highly water resistant (not as good as Straight Gelatin), dense explosive furnished in grades from 25 to 90% strengths. USE: In mining hard rock, tunneling, quarrying, construction work, shaft sinking (if not too wet).

Straight Dynamite: Produces quick shattering action; is very sensitive to impacts; 20 to 60% nitroglycerin. USE: In ditching by the propagation method, submarine blasting.

"Stripkolex" Dynamite: A dynamite designed especially for shooting the coal in stripping operations.

BLASTING AGENTS

Akremite: A low cost blasting agent packed in plastic, expandable containers. USE: For quarries, strip mines, etc. using large size blast holes. The plastic containers expand to fill the holes and offer a moderate degree of water resistance. Note: Akremite is a patented product on which DuPont is exclusive licensee with right to sublicense. Akremite can be safely manufactured by the consumer and licenses are available for this purpose.

"Nilite" Nitro Carbo Nitrate: Low cost, packaged blasting agent. USE: For blasting in quarries, strip mines, construction work, etc. CONTAINERS: Heavy paper shells or round lined burlap bags 4½- to 9-in. diameter.

"Nilite" 101 Nitro Carbo Nitrate: A low cost, free-running blasting agent, having a density from 0.70-0.75. USE: For blasting in quarries, strip mines, construction work, etc. where water resistance is not needed. CONTAINERS: 50-lb. paper bags.

"Nilite" 202 Nitro Carbo Nitrate: A low cost, free-running blasting agent, having a density of from 0.85-0.90. USE: For blasting in quarries, strip mines, construction work, etc. where water resistance is not needed. CONTAINERS: 50-lb. paper bags.

"Nilite" WR Nitro Carbo Nitrate: A low cost, packaged blasting agent, having moderate water resistance. USE: For blasting in quarries, strip mines, construction work, etc. CONTAINERS: Round, lined burlap bags 4½- to 9-in. in diameter.

"Nitramex" No. 2-H Blasting Agent: A blasting agent which is not detonated by impacts from rifle bullets, sledge hammers or by heat. Is detonated by specially constructed primers. USE: For blasting in extremely hard shooting quarries and strippings. CONTAINERS: Metal cans 4½- to 9-in. diameter x 24 in.

"Nitramite" FR Nitro Carbo Nitrate: A free-running blasting agent, having a density of 0.85-0.95. USE: For blasting in quarries, strip mines, construction work, etc. CONTAINERS: 50-lb. paper bags.

"Nitramite" Nitro Carbo Nitrate: Low density blasting agent similar to "Nitramon", packed in heavy paper shells. "Nitramite" is as insensitive to shock and friction as "Nitramon". It must be detonated by a specially constructed primer. USE: Excellent for relatively easy shooting material, top loads, and for certain coyote shot layouts. CONTAINERS: 3- to 9-in. diameter.

"Nitramon" Blasting Agent: A blasting agent which is not detonated by impacts from rifle bullets, sledge hammers, the strongest commercial blasting cap or by heat. Is detonated by specially constructed primers. USE: For blasting in quarries and stripping operations. CONTAINERS: Metal cans 4½- to 9-in. diameter.

"Nitramon" No. 2 Blasting Agent: A blasting agent having all the safety features and in all respects similar to "Nitramon" except that it is of lower strength and velocity and sells at a lower price. Like "Nitramon", it is detonated by specially constructed primers. USE: For blasting in quarries and stripping operations. Especially adapted for top hole loading. CONTAINERS: Metal cans 4½- to 9-in. diameter.

"Nitramon" HH Blasting Agent: Same general properties as "Nitramon" but highly heat-stable. USE: Strip blasting over burning coal. CONTAINERS: Cans 4½- to 9-in. diameter.

"Nitramon" S Blasting Agent: Has the same characteristics as "Nitramon", but is packed in cans which screw together to form a rigid charge. USE: For seismic prospecting. CONTAINERS: 2 in. x 1 lb., 2½ in. x 1 lb.

"Nitramon" WW Blasting Agent: Same characteristics as "Nitramon". USE: For seismic prospecting at sea. CONTAINERS: 10-, 16½-, 25-, 30-, 40- and 50-lb. cans.

Pelletol No. 1: A high density, free-running blasting agent which sinks readily in water and has unlimited water resistance. Safety characteristics similar to those of "Nitramex" No. 2. USE: For loading around "Nitramon" and "Nitramex" No. 2H. CONTAINERS: Packed 4 bags per 50-lb. case.

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Primer for "Nitramite" Nitro Carbo Nitrate: A non-nitroglycerin product packed in metal cans which can be fired with either "Primacord" or a cap. Especially developed for priming "Nitramite" but can be used with all other Du Pont blasting agents, "Tovex" and AN prill-oil mixtures. CONTAINERS: Cans 4 in x 5½ lbs. and 6½ in. x 9 lbs.

Primer for "Nitramon" and "Nitramex" No. 2-H Blasting Agents: USE: Special primer for detonating "Nitramon" and "Nitramex" No. 2H. Must be initiated by "Primacord" Detonating Fuse. CONTAINERS: Metal cans 4-, 5-, 5½-, 7- and 8-in. diameter x 24 in.

Primer for "Nitramon" S Blasting Agent: Primers which screw tightly to "Nitramon" S. Detonated by electric blasting cap or "Primacord". USE: To detonate

"Nitramon" S in seismic prospecting. CONTAINERS: 2 in. x 1 lb., 2½ in. x 1 lb.

"Tovex" Gel: A non-nitroglycerin, water compatible explosive slurry. Not cap sensitive and must be shot with a suitable primer ("Nitramon" primers are recommended). Gives very high loading density. USE: In quarries, open pit mines and construction work where the rock or ore is massive and hard to break. CONTAINERS: Polyethylene tubes 5 in x 30 lbs.

Water Work Booster: Small copper tubes containing a priming charge which are inserted in a copper well in the "Nitramon" WW cans. Detonated by an electric blasting cap. USE: To bring about the explosion of "Nitramon" WW. CONTAINERS: Cartons of 50, cases of 500.

CHEMICAL SALES PRODUCTS

Acetate Flake: Secondary cellulose acetate in flaked or powdered form, of approximate average composition $C_6H_7O_2(OH)\frac{1}{2}(CH_3COO)2\frac{1}{2}$. **USE:** In the plastics industry for making sheets, rods, tubes and molding powder; sheets for wrapping purposes; in photographic film industry for making x-ray and other safety films; in lacquer industry for making certain miscellaneous lacquers; in textile industry for making lacquer coating for fabrics, etc.; in wire industry for making lacquer coating for insulated wire. **CONTAINERS:** Moisture resistant sacks containing 50-lb.

Ammonium Nitrate—Reagent Grade— NH_4NO_3 : Crystalline or granular powder. **USE:** Where a product having a minimum purity of 99.95% is required, i.e. laboratory reagents, uranium processing and as a solid fuel propellant. **CONTAINERS:** 100-lb. polyethylene-lined paper bags, 400-lb. polyethylene-lined fiber drums.

Ammonium Nitrate—Technical Grade— NH_4NO_3 : Crystalline or granular powder, and solution. **USE:** Manufacture of explosives, paper, and other materials not requiring a chemically pure product. **CONTAINERS:** 100-lb. paper bags, 400-lb. fiber drums, tank cars, tank trucks.

Ammonium Nitrate—U.S.P. ("Niox" Ammonium Nitrate)— NH_4NO_3 : Crystalline or granular powder and solution. **USE:** In manufacture of nitrous oxide gas. **CONTAINERS:** 100-lb. polyethylene-lined paper bags, tank cars, tank trucks.

Aniline— $C_6H_5NH_2$: Pale yellow, oily liquid. **USE:** Dyes, intermediates, paints and varnishes. **CONTAINERS:** 55-gal. non-returnable metal drums (450-lb.), tank cars, tank trucks.

Caprolactam—(epsilon)—Polymer Grade— $(CH_2)_5CONH$: Available as a white, flaked solid or in molten form. **USE:** A high purity monomer for manufacture of polyamide fibers and plastics and as an intermediate in organic syntheses. **CONTAINERS:** Tank cars (molten monomer) and 55-lb. net multiwall paper bags.

Cyclohexylamine (CHA)—Distilled— $C_6H_{11}NH_2$: Clear, practically colorless liquid having a characteristic amine odor; a strong organic base stable up to 450°F. **USE:** Intermediate for manufacture of rubber chemicals, dyestuffs, synthetic sweeteners, and corrosion inhibitors. **CONTAINERS:** Tank cars and 55-gal. galvanized drums.

Cyclotrimethylenetrinitramine (Cyclonite, Hexogen, RDX): Crystalline or granular high explosive. **USE:** Shaped charges, "Primacord" and explosive specialty items. **CONTAINERS:** 100-lb. net fiber drums.

Dimethyl Terephthalate (DMT)— $H_3COOCC_6H_4COOCH_3$: A high-melting, exceptionally high purity ester of terephthalic acid. **USE:** In the manufacture of polyethylene terephthalate, wire enamels and as an intermediate for the synthesis of organic derivatives of terephthalic acid. **CONTAINERS:** 50-lb. polyethylene-lined paper bags, 10-, 50- and 350-lb. polyethylene-lined fiber drums.

Diphenylamine (DPA)—Refined— $(C_6H_5)_2NH$: Available in a molten state and as a flaked solid. **USE:** In manufacture of rubber antioxidants, as an additive for lubricating oils and greases, as a polyethylene stabilizer against oxidative degradation, phenothiazine, fungicides and in-

secticides, smokeless powder stabilization, a chemical intermediate in dyes, as an antioxidant and stabilizer for fats, oils, soap, paint, printing ink, glue, and pharmaceuticals. **CONTAINERS:** 50- and 100-lb. paper bags, 325-lb. fiber drums, 70,000- and 90,000-lb. tank cars. (See also I. & B. Department, Page 63.)

"Hitec" Heat Transfer Salt: A eutectic mixture comprised of sodium nitrite ($NaNO_2$), sodium nitrate ($NaNO_3$) and potassium nitrate (KNO_3). **USE:** As a heat transfer medium for both heating and cooling operations in the range of 300–1,000°F., such as maintaining reactor temperature, high temperature distillation, and preheating of reactants. **CONTAINERS:** 150-lb. and 400-lb. fiber drums.

Jet Perforators: Explosive charges utilizing the "shaped charge" principle in a variety of sizes. **USE:** In perforating oil well casing to permit entry into the well bore of fluids from producing formations. **CONTAINERS:** Fiberboard cases of 200.

Lead Azide— PbN_6 : White to buff, crystal solid when dry. In dry state is a highly sensitive primary detonator. Must be kept wet with water or an ethyl alcohol and water mixture until used. **USE:** In manufacture of detonators. **CONTAINERS:** 150-lb. steel drums.

Mild Detonating Fuse (MDF): A small diameter, flexible metal tube containing high explosive core loadings ranging from 1 to 20 grains per foot. The material, which has detonation velocities in excess of 20,000 feet per second, propagates a detonation from point to point without damage to adjacent equipment. The material has utility for missile applications such as stage separation. **CONTAINERS:** Various lengths on spools or as custom assemblies having special electrical initiators and primers attached.

Mixed Acid—Technical (Nitrating Acid): Mixture of nitric (HNO_3) and sulfuric (H_2SO_4) acids. **USE:** As a nitrating agent in the manufacture of explosives, nitrocellulose, nitroglycerin, dyes, and various organic intermediates. **CONTAINERS:** 700-lb. metal drums, tank cars and tank trucks.

Nitric Acid— HNO_3 : In all concentrations. Clear colorless to light yellow corrosive liquid. **USE:** Metallurgy, manufacture of dyes and dye intermediates, etching agent for photoengravers, plastic and synthetic fiber manufacture, manufacture of explosives, general oxidation purposes. **CONTAINERS:** Tank cars and tank trucks.

Nitrobenzene— $C_6H_5NO_2$: Pale yellow liquid. **USE:** Intermediate for manufacture of aniline, azobenzene, rubber chemicals and other organic intermediates. **CONTAINERS:** 55-gal. (500-lb.) metal drums, tank cars and tank trucks.

Nitrocellulose—Soluble Types: Cellulose nitrate with variable nitrogen content in a wide range of viscosities. Available wet with butyl, ethyl or isopropyl alcohol and water. **USE:** Excellent film-forming material for use in lacquers and other types of finishes; coating for cellophane, paper, fabrics, component of adhesives. **CONTAINERS:** 55-gal. capacity returnable metal drums.

Nitroglycerin—Beta Lactose Mixture— $C_3H_5(NO_3)_3$: Fine white powder. Available as a trituration of 10%

EXPLOSIVES DEPARTMENT

nitroglycerin, 90% beta lactose by weight. USE: Medicinals. CONTAINERS: 10-lb. and 50-lb. polyethylene-lined fiber drums.

"Nitrosan" Blowing Agent: Yellow powder comprised of 70% N,N'-dimethyl-N,N'-dinitrosoterephthalamide and 30% white mineral oil. Controlled thermal decomposition liberates nitrogen at 100°C. with residue of dimethyl terephthalate. Non-staining, non-discoloring gas generant. USE: For formation of open-cell or closed-cell polyvinyl chloride in addition to other plastics and elastomers. CONTAINERS: 5-lb. fiber drums.

Pentaerythrite Tetranitrate (PETN): White crystalline powder. Sensitive initiating explosive when dry. Must be kept wet with water or an ethyl alcohol and water mixture until used. USE: Manufacture of detonators; "Primacord" and explosive specialties. CONTAINERS: 55-gal. (280-lb. net) metal drums.

"Pyrocore" Igniter Cord: A small diameter, unusually high-velocity igniter cord capable of igniting propellant grains directly or intermediate ignition materials. Also satisfactory for propagating a detonation from point to point with a minimum of damage to adjacent equipment or devices. Available in various sizes and strengths. CONTAINERS: Various lengths on spools or as special devices having electrical initiators or reception primers.

Pyromellitic Acid (PMA)-(HOOC)₂C₆H₂(COOH)₂: White powder of 99+ % purity. Aromatic tetrabasic acid, m.p. 257-265°C. Undergoes typical reactions of organic carboxylic acids. USES: Polymer intermediate, raw material for plasticizers, lubricants, and alkyds with high thermal stability. CONTAINERS: 5-, 45-, and 175-lb. polyethylene-lined fiber drums.

Pyromellitic Dianhydride (PMDA)—O(CO)₂C₆H₂—(CO)₂O: White powder of 98+ % anhydride content. Aromatic dianhydride, m.p. 284-286°C. Undergoes typical reactions of organic anhydrides. USES: Polymer intermediate, crosslinking agent for epoxy resins, raw material for plasticizers, lubricants, and alkyds. CONTAINERS: 5-, 25-, and 100-lb. polyethylene-lined fiber drums.

"Qualex" Refined Sodium CMC: Low and High Viscosity: A special grade of sodium CMC developed for use as a fluid loss and viscosity control additive in drilling muds. CONTAINERS: Multi-ply moisture resistant 50-lb. bags.

Rivets, Aircraft and Industrial Blind Expansion: Fast acting, strong one-piece fasteners. Available in a wide variety of sizes and alloys. USE: For "blind" fastening of primary and secondary assemblies partially or totally inaccessible from the rear, and in open work. CONTAINERS: Fiberboard boxes of 100, 500 and 1,000.

Riveting Irons: USE: Electrical heating tools for expanding Du Pont Aircraft and Industrial Blind Expansion Rivets.

Riveting Iron Tips: Metal tips specifically fashioned for use with Du Pont Riveting Irons.

Sheet Explosive EL-506 Series: A pliable sheet of high explosive and binder available in various thicknesses.

USE: Can be used in almost any high explosive application and for such special applications as metal hardening, metal forming, shaped charges or wherever thin layers of a high-velocity Class A explosive are desired. CONTAINERS: Fiber boxes.

Sodium CMC (Sodium Carboxymethylcellulose): Dry, free-flowing, light cream to white colored fibrous powder completely soluble in water. Available in technical and refined grades, in several viscosity types and degree of substitution levels. USE: As a thickening, stabilizing, dispersing, suspending, film-forming agent, and protective colloid in aqueous systems, for soil suspension in detergents, fluid-loss control in drilling muds; strength improvement and surface coating of paper and paperboard; as a textile warp size, laundry size, synthetic tobacco leaf binder, ceramics binder, tooth paste thickener, liquid detergent thickener, ice cream stabilizer; in foods, pharmaceuticals, cosmetics, paints, adhesives, textile finishes, and emulsions. CONTAINERS: Multi-ply moisture resistant 50-lb. and 75-lb. bags, 51-gal. fiber drums.

Sodium Nitrite—U.S.P.—NaNO₂: Available as a granular or pelleted solid, purity 99.5% minimum. USE: As a corrosion-inhibitor in oil storage tanks, domestic fuel-oil tanks, oil product pipelines, oil tankers, antifreeze solutions, diesel engines, wrapping materials, cutting fluids, greases and lubricants, fire extinguishing compounds, refrigerating systems, temporary protective coatings, paints and sea water systems; in heat transfer salt, in azo dye manufacture, in rubber retarders and accelerators, in curing meats, in inhibiting polymer formation and in insecticidal smokes. CONTAINERS: 100-lb. paper bags, 150-lb. and 400-lb. fiber drums.

Sulfuric Acid—H₂SO₄: Clear colorless to light pink, heavy, oily, corrosive liquid; soluble in water in all proportions with evolution of heat.

Strength: 60° Bé. 77.67% H₂SO₄
66° Bé. 93.20% H₂SO₄

USE: In the manufacture and processing of a wide variety of chemical and industrial products. (See also I. & B. Department, Page 57.)

Terephthalic Acid (TPA)—Technical—HOOC₂C₆H₄COOH: Pale yellow crystalline solid. Aromatic diacid, M. P. 425°C., insoluble in water and most organic solvents. Undergoes typical reactions of organic carboxylic acids and ring substitution. Useful as polymer intermediate, and as raw material for plasticizers, alkyds with high thermal stability and as a cross-linking agent. CONTAINERS: 50-lb. and 300-lb. fiber drums.

Trinitrotoluene (TNT)—C₇H₅O₆N₃: Pale yellow, flaked solid. USE: As an intermediate in the dye industry, in the manufacture of detonators and explosive specialties; military explosives. CONTAINERS: 60-lb. net fiber boxes.

"Unicel" ND Blowing Agent: Cream-colored powder containing 40% N,N'-dinitrosopentamethylenetetramine (DNPT) and 60% inert filler. Gas generant which releases nitrogen under controlled heating. Stable up to 180-185°C. but can be activated to decompose at lower temperatures. USE: For incorporation in elastomers or resins as a source of gas for forming cellular or sponge materials in a wide range of densities. CONTAINERS: 100-lb. fiber drums. (See also Elastomers Department, Page 3.)

EXPLOSIVES DEPARTMENT

"Unicel" NDX Blowing Agent: Cream-colored solid containing 80% N-N'-dinitrosopentamethylenetetramine and 20% by weight of plasticizer. Has properties similar to "Unicel" ND but provides twice volume of gas per unit weight. Use: As gas generant in preparation of foamed or cellular elastomers or plastics where the inert filler in "Unicel" ND may be objectionable.

SMOKELESS POWDERS

Improved Military Rifle Powders: These powders represent the latest development in progressive burning nitrocellulose powders, giving higher velocity than the older types within the prescribed limits of pressure. They do not contain nitroglycerin. CONTAINERS: 20-lb. metal kegs.

I.M.R. No. 3031: For use in sporting rifle ammunition requiring heavy bullets and in military cartridges.

I.M.R. No. 4064: For use in military cartridges, most prominent of which, in this country, are those for the 30/06 Springfield Rifle.

I.M.R. No. 4198: For use in sporting rifles and with light bullets in military cartridges.

I.M.R. No. 4227: For use in sporting rifles and with light bullets in military cartridges.

I.M.R. No. 4320: For use in sporting rifles and in military cartridges with limited case capacity.

I.M.R. No. 4350: For use in magnum cartridges.

PB Smokeless Shotgun Powders: A single base propellant, designed particularly to be used in light and medium shotshell loads. The powder is very flexible and is noted for its consistency of performance in all makes of shells. It is clean burning and not affected by moisture. CONTAINERS: 25-lb. metal drums.

Sporting Rifle Powder No. SR-4759: A nitrocellulose powder, especially designed for use in reduced loads in large capacity cartridges, such as the 30/06 Springfield and similar cartridges. This powder is not recommended for use in pistol and revolver cartridges. CONTAINERS: 25-lb. metal drums.

FABRICS AND FINISHES DEPARTMENT

FABRICS SALES

GENERAL OFFICE: Du Pont Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

EXPORT SALES OFFICE: Nemours Building Wilmington 98, Delaware

PRospect 4-1000

BRANCH OFFICES:

Chicago 46, Illinois

7250 North Cicero Avenue, Lincolnwood

Detroit 2, Michigan
Fairfield, Connecticut

(Chicago Calls) INdependence 3-7250; (Others)
5-238 General Motors Building

Long Island City 1, New York
Los Angeles 22, California
Newburgh, New York

48-05 Van Dam Street
2000 South Garfield Avenue

ORchard 5-1010
TRinity 5-1990
CLearwater 9-3351
STillwell 6-0200
RAYmond 3-8401
JOhn 1-3700

PLANTS:

Fairfield, Connecticut

Newburgh, New York

PRODUCTS

VINYL COATED MATERIALS

"Fabrilité" Vinyl Coated Fabrics: These materials are made on a wide variety of fabric backs and are coated with selected vinyl compounds engineered for maximum resistance to flexing and wear. The fabric backing supports the vinyl coating and makes it resistant to ripping, tearing, scuffing and cracking. All "Fabrilité" is water resistant, soap- and water-washable. Made in a wide variety of colors, embossed effects and finishes, "Fabrilité" is available in a range of grades based on the service requirements of the end use. Grades are determined by the weight and construction of the fabric base and the amount of vinyl applied. Upholstery grades include: Elastic knit fabric back construction for ease in stretching and tailoring around curves; breathable constructions that promote seating comfort because they permit passage of air through thousands of tiny pores. The following list shows how "Fabrilité" is used by other manufacturers:

Automotive: For upholstery and trim, headlining, bindings and welts, and seat covers

Baby Carriages: For upholstery and tops

Belts

Bicycle Saddles

Bookbinding: For looseleaf binders

"Fabrilité" in Jeweltone Metallic Colors: Wide range of nontarnishing metallic colors for upholstery and trim, for footwear, for handbags, for wall coverings.

"Fabrilité" in Pattina Finish: Unusual reproduction of patent leather for shoes and handbags

Folding Door and Partition Enclosures

Footwear: For upper stock in certain types of women's shoes and slippers; for quarterlining, sock lining; for platform wrappers and heel coverings.

Furniture Upholstery and Household Furnishings

Garment: For men's, women's and children's sports jackets

Handbags and Pocketbooks

Luggage

Motion Picture Screens for the Home

Sporting Goods

Table Pads

Wall Coverings

"PX" Vinyl Book Cloth: A special grade of vinyl impregnated washable book cloth, especially engineered for full color decoration by offset lithography.

"Tontine" Flame Resistant Vinyl Drapery Material: Coated fabrics for window shades, for darkening draperies in visual aid schoolrooms, for school stage curtains and cyclorama backgrounds.

UNSUPPORTED VINYL MATERIALS

"Fabrilité" Unsupported Vinyl Materials: These materials are made without a fabric backing from selected vinyl compounds for handbags, pocketbooks, looseleaf binders and notebooks; and in a special grade for lamination to metal for use as a decorative trim on household appliances and metal furniture.

PYROXYLIN COATED AND IMPREGNATED MATERIALS

"Fabrikoid" Pyroxylin Coated Fabrics: The fabrics are processed with pyroxylin to produce water resistant, soap- and water-washable materials for applications which do not require the resistance to flexing given by vinyl coated fabrics.

Bindings and Welts

Bookbinding

FABRICS AND FINISHES DEPARTMENT

FABRICS SALES

"Fabrikoid" Pyroxylin Coated Fabrics (Continued)

Card Table Covers
Case Coverings
Draw Sheet: For newspaper printing presses
Footwear: For strapping in certain types of women's shoes and slippers and for sock lining
Hat Sweats
Luggage Lining
Paper Machine Aprons: For paper making equipment
Table Mats and Pad Coverings
Tire Liners: Prevents adhesion to rubber
Trimnings: For millinery and costumes

"PX" Book Cloth: A special grade of pyroxylin or vinyl impregnated, washable book cloth for bookbindings.

"Tontine" Washable Window Shade Cloth: This material is a uniformly woven fabric impregnated and coated on both sides with pyroxylin or vinyl compounds. "Tontine" is available in many colors with range of light transmittancy. Opaque coated cloth and fire resistant grades are also available.

CEMENTS

"Fairprene" Industrial Cements: These products are made from synthetic rubber compounds for cementing various combinations of cured and uncured "Fairprene" sheet stock (without fabric insert), cured and uncured "Fairprene" coated fabrics, cured and uncured rubber to leather, fabrics, paper, metal and wood.

RUBBER COATED, SILICONE COATED AND SYNTHETIC RUBBER COATED MATERIALS

"Fairprene" P.A.W. Tape (Protective and Waterstop): A seam sealant engineered for shipbuilding and aircraft use in oil-, air- and water-tight structural joints.

"Fairprene" Synthetic Rubber Coated Fabrics: A line of synthetic rubber coated fabrics, including silicone rubber and "Viton" A fluoroelastomer designed for industrial applications in the automotive, aviation, gas, chemical, petroleum and marine fields. "Fairprene" coated

fabrics have extraordinary oil, chemical, heat, cold, flame, abrasion, flexing and sunlight resistance for diaphragms, gaskets, washers, packings, seam sealants and curing bags and blankets used in laminating.

"Rug Anchor" Rug Underlay: Foam rubber underlay which prevents rugs from slipping.

SYNTHETIC RUBBER SHEET STOCKS

"Fairprene" Synthetic Rubber Sheet Stocks: Without fabric insert; made from synthetic rubber compounds, including silicone rubber and "Viton" A fluoroelastomer for special industrial applications in the automotive, aviation, gas, chemical, petroleum and marine fields. Has extraordinary oil, chemical, heat, cold, flame, abrasion, flexing and sunlight resistance for gaskets, washers, packings, seam sealants and blankets used in laminating.

SYNTHETIC RESIN COATED FABRICS, LAMINATES AND FELTS

"Armalon" TFE-Fluorocarbon Fiber Felt: An industrial felt made in various thicknesses, either as porous material or impregnated with tetrafluoroethylene resin. The impregnated product is used as a gasketing material on equipment handling corrosive materials. The plain felt is used as a filter material, particularly for corrosive products. The TFE-Fluorocarbon resin provides a maximum degree of temperature and chemical resistance.

"Armalon" TFE-Fluorocarbon Resin Coated Glass Fabrics, Tapes and Laminates: For electrical insulation; for antistick and antifriction conveyor belts and covers for heat sealing units in the food and packaging industries, for industrial diaphragms and gaskets requiring unusual resistance to chemicals and to high and low temperatures.

"Lecton" Acrylic Resin Coated Fabrics and Laminates: Glass fabrics coated with "Lecton" acrylic resin and laminates made from these coated fabrics. Offered as an electrical insulating material, these fabrics have excellent thermal stability at Class B temperatures (130°C.) and can be used for extended periods up to 150°C. They are essentially unaffected by "Fréon" fluorinated hydrocarbons.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION

AUTOMOTIVE FINISHES

GENERAL OFFICE: DuPont Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

EXPORT OFFICE: Nemours Building Wilmington 98, Delaware

PRospect 4-1000

**AUTO MANUFACTURERS'
SALES OFFICES:**

Detroit 2, Michigan
Los Angeles 22, California

5-238 General Motors Building
2000 South Garfield Avenue

TRinity 5-1990
RAYmond 3-8401

COLOR ADVISORY SERVICE:

Detroit 2, Michigan

5-238 General Motors Building

TRinity 5-1990

PLANTS:

Chicago 14, Illinois
Everett 49, Massachusetts
Flint 2, Michigan
Fort Madison, Iowa
Parlin, New Jersey
Philadelphia 46, Pennsylvania
South San Francisco, California
Toledo 1, Ohio
Tucker, Georgia

2100 Elston Avenue
59 Waters Avenue
Hamilton Avenue and St. John Street
Post Office Box 319

3500 Grays Ferry Avenue
Post Office Box 608
1930 Tremainsville Road—Post Office Box 953
Post Office Box 487

PRODUCTS

Cements:

Automotive Gasket: Prepared in heavy varnish or pigmented paste form; applicable by brush. **USE:** For cementing gaskets in place on automotive motors to increase production efficiency. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

Special Cements: A wide range of adhesives for bonding various substances by modifying applications and curing methods. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

Clears:

Bronzing Liquid (Lacquer or Alkyd Type): Lacquer type is air-dry; alkyd type is air-dry or bake. **USE:** Vehicle for aluminum or bronze powders for protection and decoration of certain automobile small parts. **CONTAINERS:** Qt., 1- and 5-gal. pails, 53-gal. drums.

Metal (Alkyd Type): Exterior or interior synthetic varnish. **USE:** Over imitation grain or decals, or over bright chrome plated parts. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Metal (Lacquer Type): Pyroxylin base clear. **USE:** For interiors over simulated wood grain or decals. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Metal (Methacrylate Type): Methacrylate base clear. **USE:** Protection of bright chrome plated parts, exterior exposure, dip or spray application. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Metal (Methacrylate Modified Lacquer Type): Mixed pyroxylin-methacrylate base clear. **USE:** Protective coating for exterior of bright aluminum panels on buses. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Metal (Modified Alkyd Type): Synthetic clears. **USE:** For interiors over simulated grain on car interior metal trim for application by electrostatic spray. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Metal (Phenolic Spar Type): Exterior or interior varnishes. **USE:** Over simulated wood grain or decals. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Wood (Alkyd Type): Clear synthetic varnish. **USE:** Wood station wagons. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Wood (Lacquer Type): Modified pyroxylin base. **USE:** Interior wood trim of custom built cars. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Wood (Phenolic Spar Type): Oil modified, phenolic spar varnish. **USE:** Wood station wagons. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Wood Sealer (Alkyd or Phenolic Type): Oil modified alkyd or phenolic with or without toxic component which retards fungus growth. **USE:** Applied by dip to wood station wagon dimensional pieces or truck body parts to seal wood pores and prevent moisture absorption. **CONTAINERS:** 5-gal. pails, 53-gal. drums.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Automotive Finishes

Compounds:

"Duco" Polishing or Rubbing Compound: A polishing material in paste form, designed for machine application or hand rubbing. **USE:** For final polishing of "Duco" lacquers to smooth surface and to bring up full gloss. **CONTAINERS:** 1- and 5-gal. cans.

Shielding Compound: A pigmented semipaste, having nondrying vehicle. **USE:** Masking parts of surface while another color is being applied. **Used with "Duco" finishes only.** **CONTAINERS:** 1- and 5-gal. cans.

"Dulux" Foam Resin: Polyester resin, specific for use with isocyanates to produce flexible polyurethane foams. **CONTAINERS:** Qt., 1- and 5-gal. cans, 53-gal. drums.

Enamels:

Chassis Black: An air-dry, black, pigmented enamel; applicable by brush or spray with an oil, asphalt, pyroxylin or synthetic type base. **USE:** On automobile chassis for protection and decoration. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums, tank wagons, tank cars.

"Dulux" Enamels: Baking and air-dry, clear and pigmented enamels based on a synthetic type vehicle; applicable by spray—manual, machine or electrostatic. **USE:** Finishing of steel and wood automobile bodies, sheet metal parts, wheels, etc. **CONTAINERS:** Pt., qt., 1- and 5-gal. cans, 53-gal. drums, tank wagons.

Engenamel: (See Page 31).

Fender: A black, oil or synthetic resin modified asphaltum type enamel applied by dipping and baking at high temperature. **USE:** Fender and miscellaneous parts finish applied over rubber first coat. **CONTAINERS:** 5-gal. cans, 53-gal. drums, tank wagons, tank cars.

Gas Tank: A pigmented, black enamel based on an oil semi alkyd or full alkyd type vehicle; applicable by spray or flow coating; air-dried or force-dried at temperatures up to 250°F. **USE:** Exterior finish of terne plate automobile gasoline tanks. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums, tank wagons.

Motor: Air-dry, pigmented, colored enamels; applicable by spray; available in an oil, synthetic or pyroxylin type base. **USE:** On automobile motors. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

Small Parts Dip: Pigmented, black or colored enamels based on semi alkyd or full alkyd vehicles to bake 250° to 350°F. **USE:** Automobile small parts. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

Lacquers:

Dip: Air-dry, pigmented, colored or clear lacquers on a special modified pyroxylin base; applicable by dip. **USE:** On instrument panels, molding, interior decoration, etc. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

"Duco" Lacquers: Air-dry, pigmented, colored lacquers on a special modified pyroxylin base; applicable by spray only. **USE:** Finishing of steel automobile bodies,

sheet metal parts, etc. **CONTAINERS:** Pt., qt., 1- and 5-gal. cans, 53-gal. drums.

"Duco" Metalli-Chrome Lacquers: Metallic finishes producing unusual color effects of great durability. **Applicable by spray only.** **USE:** Finishing of automobile bodies and sheet metal parts. **CONTAINERS:** Pt., qt., 1- and 5-gal. cans, 53-gal. drums.

"Duco" Striping Lacquers: Air-dry, pigmented, colored lacquers; applicable by brush. **USE:** For striping automobile bodies and wheels and touch-up work. **CONTAINERS:** Pt., qt., 1- and 5-gal. cans.

"Lucite" Acrylic Lacquers: Air-dry pigmented colored lacquers on acrylic resin base; applicable by spray only, but possessing much greater durability to exposure than "Duco" lacquers. **USE:** Finishing of steel automobile bodies and sheet metal parts. **CONTAINERS:** Pt., qt., 1- and 5-gal. cans, 53-gal. drums.

Primers:

Black Dipping Primer (Baking, Pigmented, Oil or Alkyd Type): Unusual stability in large dip tanks. **USE:** Dipping fenders, hoods and miscellaneous small parts. Base coat for "Duco" or "Lucite" lacquers or "Dulux" enamels. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums, tank wagons, tank cars.

Flash Primer (One-Bake Type): Baking, pigmented, colored, liquid paints on a synthetic base; applicable by spray. **USE:** Applied to steel automobile bodies and followed immediately by surfacer or baking enamel without drying period between coats. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

Metal (Oil Type): Air-dry and baking, pigmented, colored, liquid paints with oil base; applicable by spray. **USE:** On automobile bodies and sheet metal parts to give adhesion between the metal and succeeding coats. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

Metal (Pyroxylin Type): Air-dry, pigmented, colored, liquid paints on a pyroxylin base; applicable by spray. **USE:** For touch-up work only on automobile bodies and only under lacquer. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

Metal (Synthetic Type): Air-dry and baking, pigmented, colored, liquid paints with synthetic base; applicable by spray or brush. **USE:** On automobile bodies and sheet metal parts to give adhesion between the metal and succeeding coats. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

Wood: A special low pigmented type primer applicable by brush or spray. **USE:** On wood commercial automobile bodies. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

Wood Sealer: Clear or pigmented, synthetic or oil type, air-dry, penetrating sealer with or without toxic ingredient to retard growth of fungi; applicable by dip, brush, spray or flow. **USE:** On wood before other finish to seal pores and prevent failure by moisture absorption. **CONTAINERS:** 1- and 5-gal. cans, 53-gal. drums.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Automotive Finishes

Primer-Surfacers:

"Preparakote" Primer-Surfacers: Air-dry or baking, highly pigmented, liquid paints on a special synthetic base; applicable by spray or brush. USE: On steel automobile and commercial car bodies, preparatory to finishing with either "Duco" or "Dulux" finishes. CONTAINERS: 1- and 5-gal. cans, 53-gal. drums.

Primer-Surfacers (Baking Type): Highly pigmented, liquid paints of the baking type on an oil or semi alkyd base; applicable by spray. USE: On steel automobile and commercial car bodies, preparatory to finishing with either "Duco", "Lucite" or "Dulux" finishes. CONTAINERS: 1- and 5-gal. cans, 53-gal. drums.

Primer-Surfacers (Non-Sanding Type): Medium pigmented, modified alkyd base, for use under "Duco" or "Dulux" finishes. Material must be baked. When used under "Dulux" it can be flashed and the baking accomplished simultaneously with the baking of the topcoat. USE: On steel automobile and commercial car bodies, preparatory to finishing with "Duco" or "Dulux" finishes. CONTAINERS: 1- and 5-gal. cans, 53-gal. drums.

Primer-Surfacers (Pyroxylin Type): Highly pigmented, lacquer type primer-surfacers. USE: Spot repairing of car finish under lacquer or synthetic topcoats. CONTAINERS: 1- and 5-gal. cans, 53-gal. drums.

Putties:

"Duco" Putties: Air-dry, highly pigmented, paste materials; very fast drying; applied by glazing to fill metal imperfections. USE: On automobile bodies preparatory to finishing with either "Duco", "Lucite" or "Dulux" finishes. CONTAINERS: $\frac{1}{2}$ -, 1- and 5-gal. cans.

"Dulux" Paste Filler: Alkyd pastes for filling pores in wood of station wagons or interior wood trim of custom

built cars or filling pinhole pores in glass fiber reinforced polyester panels or parts preparatory to finishing with clear, surfacing material, or color. CONTAINERS: 5-gal. cans, 30-gal. drums.

"Dulux" Putties: Air-dry, highly pigmented, paste materials; minimum shrinkage; applied by glazing to fill metal imperfections. USE: Preparatory to finishing with either "Duco" or "Dulux" finishes. CONTAINERS: $\frac{1}{4}$ -, 1- and 5-gal. cans.

Oil Base Putties: Air-dry, highly pigmented, paste materials on oil base; applied by glazing to fill indentations in metal which are too deep for the surfacer to fill. USE: On automobile bodies over primer. CONTAINERS: $\frac{1}{2}$ -, 1- and 5-gal. cans.

Retarders: Slow evaporating, high boiling "Duco" or "Lucite" solvents. USE: Added to "Duco" or "Lucite" thinner to improve leveling and/or to prevent blushing in humid weather. CONTAINERS: 1- and 5-gal. cans, 53-gal. drums.

Sealers: Automotive bleederseal sealer for bleeding colors. For use over and under both lacquer and synthetic enamel type finishes to prevent discoloration of the topcoat if underneath color tends to bleed. CONTAINERS: Qt. and gal. cans.

Surfacers: Air-dry and baking, highly pigmented products on oil, pyroxylin and synthetic types of bases; applicable by spraying over primer to give a satisfactory smooth surface when sanded, preparatory to "Duco" or "Dulux" finishes, or other final finish applications. USE: On automobile bodies and sheet metal parts. CONTAINERS: 1- and 5-gal. cans, 53-gal. drums.

Thinners: Clear, liquid solvents. USE: For the reduction of primers, surfacers, lacquers and enamels to proper working consistency. CONTAINERS: 1- and 5-gal. cans, 53-gal. drums, tank wagons, tank cars.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Automotive Refinishing Materials

AUTOMOTIVE REFINISHING MATERIALS

TELEPHONE

GENERAL OFFICE: DuPont Building Wilmington 98, Delaware

PRospect 4-1000

EXPORT OFFICE: Nemours Building Wilmington 98, Delaware

PRospect 4-1000

REGIONAL OFFICES:

Atlanta 18, Georgia
Chicago 46, Illinois

1737 Ellsworth Industrial Drive, N. W.
7250 North Cicero Avenue, Lincolnwood
(Chicago Calls) INdependence 3-7250; (Others)
3133 Chester Avenue
8510 Ambassador Row
308 East Lancaster Avenue
1600 Trousdale Drive, Burlingame

SYcamore 4-9581
ORchard 5-1010
MAIn 1-8516
FLeetwood 7-4611
TRinity 8-2700
OXford 7-3870

Cleveland 14, Ohio
Dallas 21, Texas
Philadelphia (Wynnewood), Pa.
San Francisco, California

SERVICE WAREHOUSES:

Atlanta 18, Georgia
Baltimore 18, Maryland
Birmingham 3, Alabama
Boston 54, Massachusetts
Buffalo 25, New York
Charlotte 3, North Carolina
Chicago 47, Illinois
Cleveland 14, Ohio
Columbus 12, Ohio
Dallas 21, Texas
Denver 1, Colorado
Detroit 34, Michigan
Houston 11, Texas
Indianapolis 4, Indiana
Jacksonville 1, Florida
Kansas City 41, Missouri
Long Island City 1, New York
Los Angeles 22, California
Memphis 3, Tennessee
Milwaukee 21, Wisconsin
Minneapolis 4, Minnesota
New Orleans 25, Louisiana
Newark, New Jersey
Oakland 6, California
Oklahoma City 2, Oklahoma
Philadelphia 24, Pennsylvania
Pittsburgh 5, Pennsylvania
Portland 2, Oregon
St. Louis 10, Missouri
Salt Lake City 4, Utah
San Francisco, California

1737 Ellsworth Industrial Drive, N. W.
400 East Twenty-Ninth Street
2301 Fifth Avenue, South
75 Fourth Avenue, Waltham
1696 Walden Avenue
2500 South Boulevard
2560 North Elston Avenue
3137 Chester Avenue
1450 Dublin Road
8510 Ambassador Row
555 Quivas Street
19930 Conner Avenue
332 South Wayside Drive
1825 West Eighteenth Street
2256 Dennis Street
6015 Manchester Trafficway
48-05 Van Dam Street
2000 South Garfield Avenue
1573 Union Avenue
2601 North Third Street
1401 South Fourth Street
4401 Euphrosine Street
15 Stern Avenue, Springfield
1020 East Eighth Street
201 East Hill Street
4242 Whitaker Avenue
2222 Noblestown Road
5510 Southeast McLoughlin Boulevard
2300 Hampton Avenue
990 South Sixth Street, West
Post Office Box 927, South San Francisco

SYcamore 4-9581
BELmont 5-0278
FAirfax 2-8775
TWinbrook 3-2550
KEystone 7979
JACKson 3-5094
BRunswick 8-2050
MAIn 1-8516
HUdson 6-7191
FLeetwood 7-4611
AComa 2-8945
FOrest 6-8800
WAlnut 3-2546
MElrose 8-5591
ELgin 3-7461
EMerson 3-1390
STillwell 6-0200
RAYmond 3-8401
BRoadway 6-4746
CONcord 4-6872
FEderal 2-0558
AUdubon 6658
DRexel 6-5151
HIGate 4-1980
JACKson 5-2194
GARfield 6-3701
WAlnut 1-9190
BElmont 2-6177
MIssion 7-0800
EMpire 4-3582
JUno 3-0733

PLANTS:

Everett 49, Massachusetts
Flint 2, Michigan
Fort Madison, Iowa
Parlin, New Jersey
Philadelphia 46, Pennsylvania
South San Francisco, California
Toledo 1, Ohio
Tucker, Georgia

59 Waters Avenue
Hamilton Avenue and St. John Street
Post Office Box 319

3500 Grays Ferry Avenue
160 South Linden Avenue—Post Office Box 608
1930 Tremainsville Road—Post Office Box 953
Post Office Box 487

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Automotive Refinishing Materials

PRODUCTS

Aluminum Cleaner: A cleaner and brightener for new and weathered aluminum. Also for cleaning aluminum surfaces on which clear coatings or "Dulux" or other alkyd resin enamel systems are to be supplied. CONTAINERS: Qt. and gal. bottles.

Aluminum Paint: Ready mixed; varnish type products; chrome aluminum and aluminum for interior and tops of truck bodies; motors of passenger cars and commercial vehicles; tractors, farm equipment, road machinery, etc. Spray or brush. CONTAINERS: Qt. and gal. cans.

Aluminum "Duco" Lacquer: Ready-to-mix, for spray application over recommended undercoats, dries to dull sheen for rubbing and polishing. Packaged in double compartment cans, aluminum paste in top and vehicle in bottom. CONTAINERS: Qt. and gal. cans.

Aluminum "Dulux" Enamel: Ready-to-mix high brilliancy aluminum for spray or brush application and ready mixed smudge resistant aluminum for spray application over recommended undercoats on commercial vehicles and other exterior uses. Ready-to-mix packaged in double compartment cans. CONTAINERS: Qt. and gal. cans.

Chassis Blacks: Varnish type products, gloss and flat; gasoline and non-gasoline proof for refinishing chassis. CONTAINERS: 1- and 5-gal. cans, 16- and 55-gal. drums.

Clear Gloss Lacquer: A nitrocellulose type clear for garnish mouldings, instrument panels and other parts of the interior of automobiles; also mixed with aluminum or bronze powders for striping. CONTAINERS: Qt., gal. and 5-gal. cans; 16- and 55-gal. drums.

Clear Metal Lacquer: A nitrocellulose type clear for interior use as a protective coating for aluminum, aluminum alloys and other non-ferrous metals. CONTAINERS: Qt., 1- and 5-gal. cans; 16- and 55-gal. drums.

Clear Wood Primer: A synthetic type primer for priming porous surfaces, such as wood, composition panels, etc. before application of "Preparakote" Primer-Surfacer. CONTAINERS: Qt. and gal. cans.

"Duco" Lacquers: Metall-chrome, metallic and non-metallic lines of lacquer colors, blacks and whites for spray application over recommended undercoats. USE: For finishing or refinishing automobiles. CONTAINERS: Pt., qt. and gal. cans.

"Duco" Mixing and Tinting Colors: Pigmented lacquer colors for intermixing in conjunction with the Blending Machine for "Duco" lacquers. Require addition of clears before using. Also for use in tinting ready mixed "Duco" colors. USE: For finishing or refinishing automobiles. CONTAINERS: Qt. and gal. cans.

"Dulux" Clear—Exterior: A synthetic type clear for use on automotive vehicles as a clear coating over or mixed with "Dulux" enamel colors to increase gloss; a protective

coating over "Dulux" type decalcomanias, lettering or other decorations; a slow size with large decalcomanias; a protective coating over stained and filled wood surfaces. CONTAINERS: Qt., 1- and 5-gal. cans.

"Dulux" Enamel Reducers: Used to reduce the viscosity of "Dulux" enamels and other alkyd resin products. CONTAINERS: Qt. and gal. cans, 5-gal. pails, 16-, 30- and 55-gal. drums.

"Dulux" Enamels: Metallic and nonmetallic lines of alkyd resin type colors, blacks and whites for spray application and nonmetallic colors, blacks and whites for brushing. USE: To finish or refinish automobiles, trucks and all types of commercial vehicles over recommended undercoats. CONTAINERS: Qt., 1- and 5-gal. cans.

"Dulux" Mixing Enamels: Pigmented synthetic products for intermixing in conjunction with the Blending Machine for "Dulux" enamels. Require addition of an additive before using. USE: To finish or refinish automobiles, trucks and all types of commercial vehicles over recommended undercoats. CONTAINERS: Qt. and gal. cans.

Fish Eye Eliminator: An additive for "Duco" and "Lucite" lacquers and "Dulux" enamels, designed to eliminate craters in these finishes when applied on surfaces previously waxed or polished with silicone products. CONTAINERS: Boxes of 50 capsules, each of 0.486 gm. and 4-oz. plastic dispenser.

Force-dry and Anti-Wrinkle Agent: An additive for use with "Dulux" air-dry enamel colors in very hot weather or when subjected to force drying to prevent wrinkling. CONTAINERS: 1- and 5-gal. cans.

Furniture Finishes: "Duco" sealers, clear and pigmented lacquers, stains and wood fillers for refinishing wood furniture; interior use only. CONTAINERS: Qt., 1- and 5-gal. cans; 16- and 55-gal. drums for sealers and lacquers.

Inside Body Gray Enamel: A varnish type enamel. USE: For the inside of truck bodies. CONTAINERS: Qt., 1- and 5-gal. cans.

Lacquer Thinners: Used for thinning nitrocellulose and acrylic lacquer type products to spraying consistency. CONTAINERS: 1- and 5-gal. cans; 16-, 30- and 55-gal. drums.

"Lucite" Acrylic Lacquer: Metallic and nonmetallic lines of acrylic lacquer colors, blacks and whites for spot and panel repair and overall refinishing on automobiles factory finished in "Lucite", "Magic Mirror" and other acrylic lacquers. CONTAINERS: Pt. and qt. cans.

Masking Compound: A strippable compound for masking off glass areas and smooth plated metal parts of automobiles prior to painting. Not recommended for application over plastic decorations or parts, rubber or any painted surfaces. CONTAINERS: Qt. and gal. cans.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Automotive Refinishing Materials

Metal Conditioner: An acidic, pre-finishing cleaner and conditioner for ferrous metals and aluminum, designed to remove rust and corrosion, etc., and to etch the metals for improved adhesion of finishing systems. CONTAINERS: Qt. and gal. bottles.

Motor Enamel: A gray, varnish type enamel. USE: For refinishing automobile and truck engines. Not suitable for exterior exposure. CONTAINERS: Qt., 1- and 5-gal. cans.

Paint Remover: A heavy-bodied, water-washable, non-flammable product for removing all types of finishes, including baked enamels, lacquers and varnishes, from automobiles, commercial vehicles, aircraft, appliances, and other metal surfaces. CONTAINERS: Qt. and gal. cans.

"Pyralux" Fluorescent Enamels, Clear and Reducer: A lacquer type, high visibility fluorescent enamel for safety and identification marking of commercial vehicles, aircraft and other vehicles. Also for sign work and advertising purposes. CONTAINERS: Qt. and gal. cans.

Primers and Primer-Surfacers:

Lacquer Type Primer-Surfacers: Lacquer type undercoats for use in touch-up and in building up repaired metal areas on automobile bodies to a smooth surface prior to application of subsequent finishing coats. CONTAINERS: Qt., 1- and 5-gal. cans, 16- and 55-gal. drums.

Non-Sanding Primer: Quick drying synthetic type primers for use under "Dulux" enamel or other synthetic enamel topcoats only. For body steel, aluminum and alloys of aluminum or old finish when no surfacing is required. USE: For finishing automobile and truck bodies; applied by spray. CONTAINERS: Qt., 1- and 5-gal. cans.

"Preparakote" Primer-Surfacers: Quick drying synthetic type primer-surfacers for use under "Duco" and "Dulux" finishes. Fill and can be sanded. USE: For finishing or refinishing automobile and truck bodies. CONTAINERS: Qt. and gal. cans.

Spangled Galvanized Primer: A synthetic type primer for use in priming spangled galvanized iron and certain coated metal surfaces. CONTAINERS: Double compartment qt. and gal. cans.

Zinc Chromate Primer: For use in priming inside of aluminum sheets on truck bodies to prevent corrosion caused by moisture. Also used for pre-priming contacting areas of aluminum with dissimilar metals to prevent rapid corrosion resulting from electrolysis. CONTAINERS: Qt., 1- and 5-gal. cans.

Putties: Lacquer-type "Speed Glaze" glazing and "Dulux" synthetic glazing and hard putties for filling imperfections on surfaces of automobile and truck bodies. CONTAINERS: 1-lb. tubes, qt. and gal. cans.

Refrigerator Finishes: "Duco" lacquer and "Dulux" enamel finishes. For touch-up or over-all refinishing of exteriors of refrigerator cabinets, kitchen cabinets, washing machines, home, farm and commercial freezers. CONTAINERS: Qt. and gal. cans.

Retarder Thinner for "Duco" and "Lucite" Lacquers: Slow drying thinners to be added to "Duco" and "Lucite" lacquer topcoats for blush resistance and to improve gloss. CONTAINERS: Qt., 1- and 5-gal. cans.

"Rubbertone" Rubber Finish: A black finish for renewing appearance of rubber running boards, mats, tires, etc. CONTAINERS: Qt. and gal. cans.

Rubbing Compounds: Mediums for producing gloss on "Duco" lacquers. USE: In automobile refinishing. CONTAINERS: Qt., 1- and 5-gal. cans.

Sealers:

Automotive Bleederseal Sealer for Bleeding Colors: For use over and under both lacquer and synthetic type finishes to prevent discoloration of the topcoat, if underneath color tends to bleed. CONTAINERS: Qt. and gal. cans.

Hi-Speed Lacquer-Type Automotive Refinish Sealer: Used in recommended acrylic lacquer systems to prevent sandscratch swelling, improves color hold-out and gloss. Also suitable for use over original nitrocellulose lacquer and baked enamel finishes when followed by nitrocellulose lacquer topcoats. CONTAINERS: Qt. and gal. cans.

Make-Ready Ready-to-Spray Primer-Sealers: For use as a touch-up primer on bare metal spots under either lacquer or synthetic enamel topcoats. Also for use as a sealer over lacquer undercoats, lacquer finishes, and aged synthetic enamel finishes to prevent "sinking in" of topcoats and as a color ground coat. CONTAINERS: Qt. and gal. cans.

Solvents:

Gun and Equipment Cleaner: An effective solvent for cleaning spray guns and other equipment. CONTAINERS: 1-gal. cans, 5-gal. pails, 16-, 30- and 55-gal. drums.

Lacquer Removing Solvent: For use in partially feather-edging damaged areas on lacquer finished automobiles prior to refinishing; also for quick removal of lacquer finishes down to original factory undercoats. CONTAINERS: Qt., gal. cans and 5-gal. pails.

"Prep-Sol" Solvent: A safe solvent for cleaning old finishes of "Lucite", "Duco" lacquers, "Dulux" or synthetic enamels prior to sanding and refinishing with "Lucite", "Duco" or "Dulux" finishes. CONTAINERS: Qt., 1- and 5-gal. pails, 16-, 30- and 55-gal. drums.

Tractor and Implement Enamels: Pigmented semi alkyd products. USE: To refinish tractors, farm equipment, road machinery, etc. CONTAINERS: Qt. and gal. cans.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Industrial Finishes

INDUSTRIAL FINISHES

GENERAL OFFICE: DuPont Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

EXPORT OFFICE: Nemours Building Wilmington 98, Delaware

PRospect 4-1000

REGIONAL OFFICES:

Atlanta 18, Georgia
Chicago 46, Illinois

1737 Ellsworth Industrial Drive, N. W.
7250 North Cicero Avenue, Lincolnwood
(Chicago Calls) INdependence 3-7250; (Others)
3133 Chester Avenue
308 East Lancaster Avenue
1600 Trousdale Drive, Burlingame

SYcamore 4-9581
ORchard 5-1010
MAin 1-8516
TRinity 8-2700
OXford 7-3870

Cleveland 14, Ohio
Philadelphia (Wynnewood), Pennsylvania
San Francisco, California

PLANTS:

Chicago 14, Illinois
Everett 49, Massachusetts
Flint 2, Michigan
Fort Madison, Iowa
Parlin, New Jersey
Philadelphia 46, Pennsylvania
South San Francisco, California
Toledo 1, Ohio
Tucker, Georgia

2100 Elston Avenue
59 Waters Avenue
Hamilton Avenue and St. John Street
Post Office Box 319

3500 Grays Ferry Avenue
160 South Linden Avenue—Post Office Box 608
1930 Tremainsville Road—Post Office Box 953
Post Office Box 487

PRODUCTS

Acid and Fume Resisting Paints: A line of several grades and colors for maintenance use on wood and steel surfaces exposed to acid and alkali fumes. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Adhesives: (See Cements).

Airplane Dopes and Finishes: Airplane dopes for use in coating fabric surfaces. Airplane finishes, including undercoats and topcoat finishes, for use on wood and metal surfaces. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Aluminum Mixing Vehicles: Oil base and synthetic resin base varnishes to be mixed with aluminum powder or paste for use on wood or metal. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Aluminum Paints: Oil base and synthetic resin base ready mixed and ready-to-mix aluminum paints for use on exterior and interior wood and metal surfaces. CONTAINERS: 1- and 5-gal. cans.

Aluminum Powder and Paste: Various grades for use in vehicles and bronzing liquids. CONTAINERS: 1-, 2- and 10-lb. cans, 50- and 100-lb. drums.

Asphalts, Air-Drying Types: Black enamels for application to metal. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Bronzing Liquids: Of various types including pyroxylin base, oil base and synthetic resin base; used as vehicles for the application of aluminum powder, aluminum paste and bronze powder. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

"Budium" Polybutadiene Can Coatings: (See Tin Decorating Finishes, Page 32).

Cements:

Belt Cements: Pyroxylin base cements used in the manufacture of leather belts requiring resistance to the effects of moisture. CONTAINERS: 5-gal. cans, 55-gal. drums.

Hot Melt Bookbinding Adhesives: Synthetic resin adhesives, solvent free, applied in melted form for book-binding purposes, principally binding together paper of books, magazines, catalogs, etc., and adhering of outside covers to magazines, catalogs, etc. CONTAINERS: Metal containers holding solid pack of 50 and 95 lbs.

Household Cement (Waterproof Cement): A pyroxylin base cement having a wide utility in the repair of articles made of wood, glass, ivory, leather, pearl or cloth. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Pyroxylin Cements: Pyroxylin base cements for use in cementing plastic facings to wooden heels by manufacturers of women's shoes. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Special Cements: A wide range of adhesives for an extended field of specialized uses pertaining to the problems of bonding various substances including "Mylar" polyester film and involving many modifications of various application and curing methods. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Thermoplastic Cements: Used for cementing or laminating various surfaces, such as metal foils, cloth, glass and sheets of metal that require the application of heat and pressure. These cements are applied to the surfaces and after thorough drying are ready for the necessary heat and pressure treatment required. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Industrial Finishes

Driers: Compounds used to accelerate the oxidation of a finish which contains drying oils. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

"Duco" Furniture Lacquer, Clear and Flat: Used for finishing wood furniture. CONTAINERS: 5-gal. cans, 55-gal. drums.

"Duco" Furniture Lacquer Sealers: (See Furniture Lacquer Sealers).

"Duco" Lacquer Enamels: Pyroxylin base enamels furnished in a wide range of colors and types for satisfying the finishing requirements of numerous industries. Applied directly to a surface or over undercoats, depending on the finish needed. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

"Duco" Lacquer Metall-Chrome Enamels: Metallic finishes producing unusual color effects of great durability. Applicable by spray only. USE: Finishing of sheet metal parts. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

"Duco" Lacquer Penetrating Primers: Clear primers used in place of a sealer particularly in furniture finishing to give a high degree of scratch resistance. CONTAINERS: 5-gal. cans, 55-gal. drums.

"Du-Lite" Wood Bleach System: A chemical treatment employed to bleach wood to light colors.

"Dulux" Clear Exterior Finish: Synthetic resin base clears made in various formulations for different types of requirements and characterized by unusual flexibility and durability. Applicable either directly to a surface or as a topcoat over enamels for decorative and protective values. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

"Dulux" Enamel and Paint Type Pigmented Finishes: Synthetic resin base enamels and paints furnished in a wide range of colors of various specific types to meet the finishing requirements of numerous industries. Applied directly to a surface or over undercoats, depending on the finish needed. Furnished in both air-drying and baking types. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

"Dulux" Wood Finish, Clear and Flat: Synthetic resin base clears for furniture finishing. The film must be cured by baking. Applied over a sealer. CONTAINERS: 5-gal. cans, 55-gal. drums.

Enamels: (Also see Asphaltums, "Duco", "Dulux", "Flintflex", "Lucite" and Engenamel). Pigmented finishes available in various colors and in various types, such as pyroxylin base enamels, oil base enamels and synthetic resin base enamels. Available in air-drying and baking types. Applicable either directly to a surface or over undercoats, depending on the nature of the finish required. Applied by spraying, brushing, dipping or roller coating for protective and decorative purposes. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Engenamel: A red enamel (pyroxylin base) used as a sealer coat for crankcases, transmission cases, gear cases, etc., of gasoline motors. CONTAINERS: 5-gal. cans, 55-gal. drums.

Fillers:

Metal: A heavy paste type of filler used over undercoats to smooth out imperfections in the metal. CONTAINERS: 5-gal. cans, 30-gal. drums.

Wood: Available in paste or liquid form. Used for filling pores in wood as part of the preparation of surface for subsequent application of varnishes or lacquers. CONTAINERS: 5-gal. cans, 30-gal. drums.

"Flintflex" Enamels: Enamel finishes of the synthetic resin type, employing "Dulux" resins but designed for interior use only. Available in air-dry and baking types. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Foil Lacquers: Clear and colored lacquers for roller coating application to aluminum foil. The clear may be tinted with alcohol soluble dyes. CONTAINERS: 5-gal. cans, 55-gal. drums.

Formvar Wire Enamels: (See Wire Enamels, Page 33).

Furniture Finishes for Wood: (See Furniture Lacquer Sealers, "Duco" and "Dulux" Furniture Clears and Flats). Also all color components, stains, fillers, wash coats, toners, etc. as well as bleaching components (See "Du-Lite" Wood Bleach).

Furniture Lacquer Sealers: Furniture Lacquer Sealers are used as a preliminary coating which is processed with sandpaper and which is then followed by the required number of furniture lacquer topcoats.

"Duco" Furniture Lacquer Sealers are similar in composition to clear and flat "Duco" Furniture Lacquers but are modified to permit easy sanding with conventional sandpaper. CONTAINERS: 5-gal. cans, 55-gal. drums.

"Tufcote" Furniture Lacquer Sealers differ from "Duco" Furniture Lacquer Sealers in that the former are modified to permit sanding with a special grade of sandpaper particularly suited for use with them. "Tufcote" Furniture Lacquer Sealers return better results than "Duco" Furniture Lacquer Sealers with respect to film properties of toughness, scratch resistance and clarity. CONTAINERS: 5-gal. cans, 55-gal. drums.

Implement Finishes: For application by brush, dip or spray to various types of agricultural implements. CONTAINERS: 5-gal. cans, 55-gal. drums.

Insulating Varnishes: Used to waterproof and improve the dielectric properties of fabric covered electrical wires and cables. CONTAINERS: 5-gal. cans, 55-gal. drums.

Lacquers: (See Airplane Finishes, Bronzing Liquids, "Duco" Lacquers, Metal Lacquers and Paper Lacquers).

"Lecton" Acrylic Resin Wire Enamels: (See Wire Enamels, Page 33).

"Lucite" Acrylic Lacquers for Industrial Use: Air-drying pigmented colored lacquers on acrylic resin base possessing much greater durability to exterior exposure than "Duco" Lacquer.

Metal Lacquers: Clear pyroxylin base lacquers used as finishes direct to metal, as primers on metal for enamel coats and as topcoats over pyroxylin enamels. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Methacrylate Clear Finishes: Clear solutions of acrylic resin for use over noncorrosive metals. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Industrial Finishes

"NFL" Wood Stains: (See Stains, Wood, this page).

Nylon Wire Enamel: (See Wire Enamels, Page 33).

Paints: Pigmented finishes, available in various colors and in both oil base and synthetic resin base types; applicable by brush or spray either directly to surfaces or over suitable primers, depending on the nature of the finish required and surfaces to be coated. These products include metal protective paints, prepared paints for wood, flat wall paints and a wide variety of special paints for miscellaneous purposes. Many interior paints are available on an odorless basis. (See Trade Sales Finishes).

Paper Lacquers:

Gloss Lacquers: For use on overprint label stock, parchment, supercalendered clay coated papers, vulcanized fiber and dense paperboard to obtain a high gloss and scuff resistance. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Grease and Oil Resistant Lacquers: For use on parchment, glassine, kraft and dense papers to provide grease and oil resistance. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Heat Resistant Lacquers: For use on paper plates or other stock where a degree of heat resistance is needed. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Heat Sealing Lacquers: For use on glassine, parchment and dense papers where heat sealing only is required. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Moistureproof Heat Sealing Lacquers: For use on glassine, parchment and dense papers where both moistureproofness and heat sealing are required. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Moistureproof Lacquers: For use on glassine, parchment, vulcanized fiber and dense papers where moistureproofness only is required. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Paste: (See Colors in Oil, Fillers, and Stencil Paste).

Primers: Various general types, including pyroxylin base, oil base and synthetic resin base; used as the first or priming coat in a finishing system. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Putties: Oil base, synthetic resin and pyroxylin base putties, both of the hard type and glazing type. For use in finishing where the surface imperfections are too pronounced to permit obtaining a smooth surface by the use of primer and surfacer coats. CONTAINERS: 1-, 5-, 10- and 22-lb. cans. Pyroxylin base putties also available in 1-lb. tubes.

Pyroxylin Solutions: Mixtures of nitrocellulose and solvents made up in various combinations as lacquer bases; also made up in combinations according to customers' specifications.

Railway Finishes: A complete line of exterior and interior finishes for passenger train cars, locomotives, freight cars, stations, signal equipment, bridges, tractors and trucks.

Refrigerator Finishes: A complete line of "Dulux" high bake primers, and "Dulux" and "Lucite" high bake enamels for use on metal refrigerators. CONTAINERS: 5-gal. cans, 55-gal. drums, tank trucks (by special arrangement).

Retarders: Exceptionally slow drying thinners, used with pyroxylin base lacquers or enamels, to retard speed of drying and for prevention of blushing. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Sign Finishes: A complete line of finishes, including undercoats, "Dulux" sign enamels, "Dulux" stencil paste and "Dulux" clear sign finishes. For use on silk screen stencil; press printed, gum printed and lithographed metal signs. CONTAINERS: 5-gal. cans, 55-gal. drums.

Stains, Wood: Used under lacquer and varnish to intensify and produce various grain effects on wood. Available in ready-for-use form involving choice of pigmented, oil soluble, water soluble and spirit soluble stains. CONTAINERS: 5-gal. cans, 55-gal. drums. Also water soluble stains available in dry powder form in 5-lb. cans.

Stencil Paste: (See Sign Finishes).

Strippable Coatings: For various purposes such as coating spray booths, conveyor belts, etc., to catch and remove overspray. Also strippable coatings for temporary protection of idle equipment.

Surfacers: Various general types, including pyroxylin base, oil base and synthetic resin base; used as a second or intermediate coat in a finishing system. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

"Teflon" TFE-Fluorocarbon Resin Finishes: Special finishes which must be cured by high fusing temperatures. They have outstanding corrosion resistance, high heat stability and anti-sticking properties. CONTAINERS: 1-pt., 1-qt. and 1-gal. glass containers.

"Teflon" TFE-Fluorocarbon Resin Wire Enamels: (See Wire Enamels, Page 33.)

Thinners: Appropriate combinations of solvents and diluents, used for the purpose of reducing the viscosity or consistency of finishes. Special grades available for various types of pyroxylin base, oil base and synthetic resin base finishes. Certain thinners used for pyroxylin base finishes may also be used to remove pyroxylin films and grease from surfaces which are to be refinished. (Also see Retarders, this page.) CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

Tin Decorating Finishes: Varnishes and enamels, both oil base and synthetic resin base, including "Budium" polybutadiene finish for application to tin plate which, after baking, is formed in dies to produce various types of metal containers. CONTAINERS: 5-gal. cans, 55-gal. drums.

Undercoats: (See Primers and Surfacers).

Varnishes: Clear finishes for application by brush, dip or spray; made from drying oils combined with natural resins or synthetic resins for application to various surfaces for the deposition of films which serve to protect or enhance the appearance of surfaces. CONTAINERS: 1- and 5-gal. cans, 55-gal. drums.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Industrial Finishes

Washing Machine Finishes: A complete line of "Dulux" high bake primers and "Dulux" and "Lucite" high bake enamels for use on metal washing machines. CONTAINERS: 5-gal. cans, 55-gal. drums.

Waterproof Cement: (See Cements, Page 30).

Wiping Stains: Fast drying pigment wiping stains. (See Stains, Wood).

Wire Enamels: Coatings which on baking give enamel-like appearance; used for application to electrical wire for the purpose of providing insulation. CONTAINERS: 53-gal. drums, tank cars.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Specialties Sales

SPECIALTIES SALES

GENERAL OFFICE: DuPont Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

EXPORT OFFICE: Nemours Building Wilmington 98, Delaware

PRospect 4-1000

PLANTS AND WAREHOUSES (Combined):

Columbia, Tennessee (Sponges)

EVERgreen 8-5632

Flint 2, Michigan (Chemicals and Sponges)

Hamilton Avenue and St. John Street

CEdar 2-1104

WAREHOUSES:

Los Angeles 22, California

2000 South Garfield Avenue

RAYmond 3-8401

Oakland, California (Auto and H. H. Sponges)

1020 East 8th Street

HIGate 4-1980

Portland, Oregon

5510 S. E. McLaughlin Boulevard

BElmont 6-1139

"7" AUTOMOTIVE SPECIALTIES PRODUCTS

Acid and Rust Inhibitor: A patented, economical chemical inhibitor for automotive cooling systems to help keep them rust free. It dissolves quickly, prevents rust from forming and neutralizes acids. Not recommended for systems with aluminum components. Mixes readily with all standard type anti-freezes. CONTAINERS: 8½ oz.

All Purpose Sealer: Seals leaks in auto windshields and rear windows. Also for sealing leaks in garden hose, water pails, gas tanks, gaskets, plumbing fixtures, radiator hoses, hot water tanks, laundry tubs, rubber footwear, small boats, rain spouts, and metal containers. CONTAINERS: 1¾-fl. oz. tubes.

Anti-Rust and Water Pump Lubricant (Liquid): Helps prevent both electrolytic and chemical corrosion in cooling system. Lubricates water pump—eliminates squeaks. Works in plain water or any standard anti-freeze solutions. Harmless to all parts of cooling system, including aluminum. Just pour liquid into radiator. One pint is sufficient for a cooling system holding 22 quarts or less. Recommended for passenger cars, trucks, tractors, buses. CONTAINERS: 12 oz.

Auto Wax: An easy polishing paste wax for auto finishes. Produces a brilliant, durable luster and protects the finish from dirt, moisture and ultraviolet rays of the sun. CONTAINERS: 7 oz. and 1 lb.

Brake Fluid, Heavy Duty: A very high quality brake fluid that meets or surpasses rigid S.A.E. specifications and Federal Specification VVH-910. USE: In all automotive hydraulic brake systems under severe or moderate operating conditions. CONTAINERS: 12 oz., 1 qt., 1- and 5-gal. cans, 30- and 54-gal. drums.

Brake Fluid, Super Heavy Duty: A super heavy duty brake fluid formula which meets or exceeds Super Heavy Duty Specification SAE 70R3 and Heavy Duty Specification SAE 70R1 and Federal Specification VVH-910. USE: In all automotive hydraulic brake systems under severe operating conditions. CONTAINERS: 12-oz., 1-qt., 1- and 5-gal. cans, 30- and 54-gal. drums.

Bug Remover: A cleaning powder for removing bug residue from car finishes and chromium. Contains "Duponol" surface active agent in combination with other ingredients. Reacts quickly on the bugs without harming the car finish. Can also be used for cleaning windshields and headlights. CONTAINERS: 8 oz., 1 lb.

Car Soap: An economically priced car washing detergent for shop use. Concentrated formula will not streak. CONTAINER: 75 lb.

Car Wash: A soapless detergent which, when dissolved in water, makes car washing easy. Removes dirt and grease quickly and safely. Makes drying unnecessary. Easy on the hands and car finish. CONTAINERS: ½ oz., ¼, 4, 16 and 60 lb.

Cellulose Sponge: (See Household Specialties and Marine Specialties, Page 36.)

Chrome and Metal Polish: A speedy cleaner, polish and rust remover for chrome plated bumpers and other auto fittings. Polishes nickel, brass, copper and stainless steel. Produces a brilliant luster. Also recommended for home and shop uses. CONTAINERS: 12 oz.

Clear Rubber Dressing: Makes black, white or colored rubber look like new. Does not soak in, easy to use, tack free. Mixes with equal parts of water. Excellent for colored floor mats.

Clear Windshield Sealer: A clear, waterproof cement for stopping leaks at windshields and rear window frames. Dries quickly and adheres firmly to glass, metal and rubber, making a tight, permanent, waterproof seal. CONTAINERS: 1¾-fl. oz. tubes.

Cooling System Cleanser: A heavy duty, acid type cleanser which cleans badly clogged radiators by actually dissolving rust, scale and grease without injury to hose packings or gaskets. Not recommended for use in systems with aluminum components. Does not require reverse flushing. CONTAINERS: Lb.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Specialties Sales

Cooling System Sealer: Stops and prevents leaks in automotive radiators and cooling systems quickly, without clogging the passages. Harmless to hose and metal parts. Mixes readily with all standard types of anti-freeze. CONTAINERS: 12 oz.

"Dissolvo" (Solvent) Tar and Road Oil Remover: A safe solvent for removing tar, road oil, old wax, Spray Glaze and silicone automobile polishes. Safe for all automobile finishes. CONTAINERS: 12 oz., 1 gal.

"Duco" Cement: A transparent, flexible, waterproof adhesive used in the manufacture or repair of articles made of wood, glass, china, metal, ivory, leather, paper or fabrics. Patented applicator tip keeps cement off fingers, permits application to small areas. CONTAINERS: 3/4-fl. oz. tubes, 1 3/4-fl. oz. tubes (12 to display carton).

Fast Flush: A maintenance-type liquid radiator cleaner designed for routine use in spring and fall to maintain maximum cooling system efficiency. Safely disperses grease, rust and scale in 10 to 30 minutes. Requires no neutralizer, just flushing with water. Will not harm rubber or metal cooling system parts. CONTAINERS: Pt.

Foam Cleaner: A liquid concentrate, to be diluted with water and the foam used for cleaning carpets, rugs and upholstery. Cleans both flat weave and pile fabrics. Gives them a fresh, new look. Is safe and easy to use. The diluted liquid is also an excellent paint and woodwork cleaner. CONTAINERS: Pt.

Gas Guard: A premium grade fuel system anti-freeze which prevents ice forming in the gasoline lines of cars, trucks and tractors. Eliminates stalling and sputtering caused by the presence of water in the gasoline. Contributes to quicker starting and smoother engine performance, even in subzero weather. One pint every 1,000 miles will give adequate protection. CONTAINERS: 12 oz.

Glass and All-Purpose Cleaner: An economical, concentrated cleaning fluid that cuts grease and grime efficiently and safely. Cleans vinyl automobile upholstery, windshields, walls, woodwork, gas pumps, soft drink coolers, and other glass, metal or painted surfaces. Will not smear, leaves no film, economical to use. CONTAINERS: Qt., gal.

"Glow" Liquid Car Wash: For those who prefer a liquid car wash. Removes dirt, oil, grease but not existing wax on finish. Will not streak, dries without wiping.

Heavy Duty Stop-Leak: For repairing cracked cylinders, engine blocks and water jackets in cars, trucks, buses and tractors. Will not harm hose or metal parts nor clog the system. Also recommended as a heavy duty stop-leak. Mixes readily with all standard type anti-freeze solutions. CONTAINERS: Pt.

"Jet Clene": A cleaner for car upholstery—vinyl, plastic, "Fabrilit", plastic coated fabrics and leather. Also excellent for cleaning spots from all household upholstery, textiles and rugs. CONTAINERS: 12 oz. aerosol.

Liquid Tire Black: A ready mixed, black dressing for automobile tires, rubber mats and running boards. Dries quickly to a satin finish. CONTAINERS: Pt.

M.O.A.—Motor Oil Additive: A crankcase lubricating oil additive effective in reducing oil consumption and in reducing the formation of sludge formed during "stop and go" driving. CONTAINERS: 15 oz. cans, 5 gal., 30 gal. drums.

New Car Wax: A triple-action paste wax especially formulated for use on new cars and those with finishes in excellent condition. Cleans with an "easy on the finish" cleansing action. Waxes with a hard, solid paste wax that protects. Glazes with a brilliant, durable weatherproof coating. CONTAINERS: 8 oz., 1 1/2 lb.

"Orel" Rubber Lubricant: Harmless to rubber, yet effectually penetrates and lubricates rubber shackles and all rubber parts. CONTAINERS: Gal.

"Pro-Tek" Protective Hand Cream: A greaseless cream which, when rubbed on the hands and arms, protects against paint, lacquer, grime, grease, thinner and many chemicals. It washes off easily and takes the dirt with it. CONTAINERS: 8 oz., 1 and 5 gal.

Rubber Dressing: A black liquid concentrate for thinning with eight parts or more of lead-free gasoline to make an excellent tire dressing. For use by service stations and retreading shops on tires, rubber mats and running boards. CONTAINERS: Qt., gal.

"7" Polish: An excellent cleaner and polish for all car finishes—new or old. Rubbed on; when dry it is wiped off with a clean cloth. This removes all dirt and chalked pigment, restoring original color and luster. CONTAINERS: Pt., qt., gal.

"7" Rubbing Compound: A strong, abrasive cleaner for removing scratches and blemishes from auto finishes. Excellent for cleaning severely weathered finishes before waxing. Can be used for rubbing down newly sprayed finishes. Produces a smooth surface easily and quickly. CONTAINERS: 12 oz., 1 qt., 1 gal.

"Shield": A new formula developed to shield the beauty of all car finishes, especially the new acrylic lacquer and improved enamels used by major car manufacturers. "Shield" can be applied to a new car four days after the car has been painted in manufacture. It sets up a hard "repellent shield" between the car finish and dulling dirt, traffic film—actually improves scratch resistance of new car finishes. One application of "Shield" lasts for months. Car can be washed sparkling clean, quickly and easily. Grime does not stick. CONTAINERS: 1 pt.

"Slipspray": An all-purpose, dry lubricant for use in the home, shop or office. "Slipspray" is stainless, odorless, waxless and colorless. Contains no oil or silicone. Makes everything slide easier and work better—drawers, locks, windows, doors, screens, zippers, etc. May be applied to any surface—paint, car finishes, rubber, glass, plastic, leather and fabrics. Not affected by water, oil or solvents—will not flush off, freeze or melt. CONTAINERS: 8 oz. aerosol.

Speedy Cleaner: A liquid cleaner for all auto finishes. Removes chalked pigment, traffic film, wax, Spray Glaze and silicone polishes quickly and safely. Especially recommended for use before applying wax. CONTAINERS: Pt., gal.

Spot Remover (Dry Clean): A nonflammable cleaning fluid, leaves no odor and does not shrink fabrics; recommended for all colorfast garments, gloves, draperies, upholstery and fine fabrics; removes grease, wax, fresh paint, gum, adhesive tape and road tar. CONTAINERS: 8 oz., 1 gal.

FABRICS AND FINISHES DEPARTMENT

Spray Glaze: A beauty treatment for automobiles, designed for use in a shop or service station. It produces a higher luster and has greater durability than waxes, yet requires less time and labor to apply. After the car finish is cleaned in the usual way, simply spray on Spray Glaze and wipe it off. This leaves a dry, brilliant shine without further polishing. CONTAINERS: Gal.

Spray Glaze Cleaner No. 1: A heavy duty cleaning compound designed for use by hand before applying Spray Glaze. Removes traffic film, chalked pigment and old wax quickly and safely. Suitable for all car finishes—new or old, lacquer or synthetic enamel. CONTAINERS: Gal.

Spray Glaze Cleaner No. 2: Formulated primarily for use with electric polishing machines before applying Spray Glaze, but may be used by hand on new cars and others whose finish is in excellent condition. Suitable for both standard and feeder type machines. CONTAINERS: Gal.

Waterless Hand Cleaner: A solvent type cleaner that removes dirt, grease, grime, paints, oils, carbon, tar and shellac. Contains lanolin to help prevent skin irritation. CONTAINERS: 8 oz., 28 oz., 5 lb.

White Polishing Compound: A moderately strong cleaner for removing heavy traffic film and chalked paint pigment from the car finish. Can be used on all colors and all types of car paints. Excellent for removing scratches and stains. CONTAINERS: 12 oz., 1 qt. and 1 gal.

White Wall Tire Cleaner: Cleans white wall tires easily, safely and economically. CONTAINERS: Pt., gal.

Windshield Washer Solvent: A concentrated detergent anti-freeze solution for year-round use in windshield washers. Guards against solution freezing in winter and aids in removing bugs, grease and dirt during summer driving. CONTAINERS: 6 oz.

2-4-1: An economical cleaner and polish for all car finishes. Quickly and easily cleans dull and oxidized paint leaving a sparkling clean surface. CONTAINERS: Pt.

HOUSEHOLD SPECIALTIES PRODUCTS

Cellulose Sponge: Highly absorbent, soft and resilient when wet, long-lasting. It will not scratch, can be sterilized by boiling, not affected by ordinary cleaning compounds. Fine and coarse pore types are available. USE: Commercially for many purposes, such as washing walls and painted surfaces, windows, etc.; in the home, for washing dishes, general cleaning and in the bath.

AVAILABLE FORMS: Convenient sizes in the regular buff shade for general cleaning purposes and in various pastel shades for use in the home. Also cut to specified sizes for converters, or specialized industrial uses.

Standard size, packaged sponges are sold through brokers and agents to grocery, drug, variety store, sanitary supply outlets. Automotive Specialties sells to automotive and hardware trades. (See above). Fine pore packaged sponges for photographic use are sold by Photo Products Department (See Page 90). Special sizes for converters and industrial users are also sold by Household Specialties.

"Turtleback" Car Washing Sponge: A sponge particularly designed for use in washing automobiles and trucks.

FINISHES DIVISION: Specialties Sales

"Combo" Synthetic Sponge: Multi-purpose, two sided sponge that scrubs and scours on one side, absorbs and wipes on the other. Special abrasive, nonscratching polyurethane side does the scrubbing—conventional cellulose side performs normal wiping function.

Cellulose Sponge Cloth: Extra-soft, lintless and absorbent when wet. Has exclusive built-in fiber reinforcement for longer wear. USE: All-purpose household size for dishwashing, woodwork, windows, etc. A Commercial size is offered in the sanitary supply trade, for industrial-institutional cleaning. Automotive Specialties sells larger size to automotive and hardware trades.

Cellulose Sponge Yarn: Cotton yarn core covered with cellulose sponge. Wound on ball multiple-end warps and single-end spools. Available in $\frac{1}{4}$ in. (buff or green) and $\frac{1}{2}$ in. (green only) diameters. USE: For converter use in manufacture of household and industrial wet mops, and for weaving into cloths, pads, coaster mats, etc.

"7 SEAS" MARINE PRODUCTS

All-Purpose Sealer: Seals leaks in boat windshields and windows. Also for sealing leaks in water lines, gas tanks, gaskets, small boats, and metal containers. CONTAINERS: $1\frac{1}{2}$ fluid oz. tubes.

Bilge Cleaner: A fast, easy, effective agent for removing oil, grease, and scum from boat bilges. DuPont Bilge Cleaner will homogenize these contaminants with the water to be pumped overboard through the bilge pump. Leaves bilge fresh and clean. Reduces possible fire hazard. Also handy for removing water-line scum and oily accumulations on engine blocks and other surfaces. CONTAINERS: 12 oz.

Block-Moisture and Corrosion Control: An easy to apply aerosol liquid spray, Block deposits an invisible, long-lasting anti-corrosion film on any surface. It dries wet electrical and ignition systems by creeping under the moisture and displacing it. Wet engines start in a jiffy. Stops shorting and static interference due to moisture in radio and electrical equipment. An excellent penetrating lubricant, too, for loosening corroded fittings. CONTAINERS: 8 oz.

Boat Bottom Cleaner: Cleans algae and scum from boat bottoms quickly. Especially effective in salt water areas for removal of grass growth from fiberglass hulls and outboard lower units. In fresh water areas it provides an easy means of removing river scum. CONTAINERS: Pint and 1 gal. cans.

Boat Polish: An easy-to-use polish and cleaner for fiberglass, painted, and/or varnished boat surfaces. Rubbed on; when dry it is wiped off with a clean cloth to remove all dirt and chalked pigment, providing a highly polished boat finish. CONTAINERS: Pt.

Boat Soap: An all-purpose, highly-concentrated liquid detergent for fast, easy, cleaning above and below decks. Only one to two teaspoonfuls needed in each gallon of water. Hulls, decks, bulkheads, bright work, dishes . . . everything washable on board can be made sparkling clean with this product. Removes oil stains and scum. Works

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Specialties Sales

equally well in fresh, salt, hard or soft water. Won't streak. CONTAINERS: 12 oz.

Boat Wax: A combination paste wax formulated for use on all boat finishes. A mild cleaning agent incorporated in the wax helps remove any minor finish oxidation and surface scum. The tough, durable, carnauba wax provides a brilliant luster while protecting the surface with a durable, weatherproof coating. CONTAINERS: 8 oz.

Engine Cleaner and Degreaser: A liquid concentrate which may be sprayed on engines and parts for removing oil and grease accumulations. Engines may be cleaned by spraying the material on, allowing to stand for a few minutes, then hosing off with water. When used on inboards, the residue may be pumped overboard through the bilge pump. On outboards, merely hose off with water. Bulk sizes also available for cleaning engine and boat parts. Excellent for cleaning outboards prior to winter storage. CONTAINERS: 16 oz. aerosol, 1-, 5-, 30- and 55-gal. cans.

Heavy Duty Fiberglass Cleaner: A strong, abrasive cleaner for cleaning severely weathered Fiberglass finishes before polishing or waxing. Prepares a surface for polishing or waxing, easily and quickly. Also excellent for oxidized paint finishes. CONTAINERS: 12 oz.

Perk Marine Oil Additive: A marine crankcase oil additive that reduces engine wear, cuts costly repairs, saves oil and promotes smoother running of marine engines. It prevents harmful sludge and keeps engines clean. Works well with all motor oils. To maintain new engine performance, use with every oil change. CONTAINERS: 15 oz.

Plastic Windshield Cleaner: An excellent cleaner and polish for all plastic windshields and windows. Quickly removes dirt, scum and light surface scratches. CONTAINERS: 8 oz.

Scratch Remover: Formulated especially for removing deep scratches from plastic windshields and windows. CONTAINERS: 2 oz.

"Slipspray" All-Purpose Dry Lubricant: A totally different kind of lubricant. Sprays clean, stays clean—dries instantly. Makes everything slide easier—works on any surface. Odorless, colorless, stainless. Will not leave greasy or oily film. Retards corrosion on battery terminals, tools, electrical connections. CONTAINERS: 6 oz. aerosol.

Snug Canvas Water Repellent: An excellent water repellent dressing for boat covers, boat awnings, tarpaulins, and all heavy cloth boating accessories. Snug repels water and helps preserve canvas. Improves weather resistance.

Will not stiffen, shrink or discolor fabrics. May be applied with brush, swab or spray. Long-lasting. CONTAINERS: Qt. and Gal.

Show Boat Metal Polish: Removes rust stains and gives a brilliant luster to marine metal trim quickly—easily. For use on all metals, including chrome, brass, copper, nickel, stainless steel and anodized aluminum. Keeps bright metals sparkling. CONTAINERS: 12 oz.

Spark Marine Fuel Additive: A marine fuel additive that inhibits gum formation in fuel tanks, lines and carburetors. Spark Marine Fuel Additive also absorbs water in gasoline and diesel fuels caused by condensation. Assists quick starting, helps maintain full pep and power, keeps engines running smoothly. For diesel and gasoline powered inboards and outboard engines. CONTAINERS: 6 oz. outboard size, and 12 oz. inboard size.

MARINE SPONGE PRODUCTS

"Captain's Combo" Synthetic Sponge: Multi-purpose, two-sided sponge that scrubs and scours on one side, absorbs and wipes on the other. Special abrasive, non-scratching polyurethane half does the scrubbing—conventional cellulose half performs normal wiping functions.

Deckhand Sponge: A big, husky sponge that is excellent for cleaning large topside areas. It also doubles as a bailer.

Galley Sponge: An all-purpose cleanup sponge that has thousands of uses on any boat. Specially shaped for use in the galley. Easy to grip—easy to use.

Giant Deckhand: A giant size sponge for giant size jobs on board boat. Especially useful for large bailing jobs.

Seaturtle: An exclusive DuPont Sponge. The flat side washes, the curved side has a skinlike backing that is excellent for wiping and drying. Handy for many cleaning jobs around the boat.

Cellulose Sponge Cloth: This reinforced cellulose sponge cloth, a new DuPont discovery, makes boat washing a snap. It washes like a cloth, absorbs water like a sponge, and wipes like a chamois. Made of versatile cellulose, it's molded on a center screen of tough fibers for extra strength, durability, and tear resistance. Soft to the touch, it's self-cleaning, rinses fresh and clean, and leaves no lint.

Super Scooper Sponge: Especially shaped to bail boats fast and easy. Squeezes dry with light pressure—bounces back ready for more.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Trade Sales Finishes

TRADE SALES FINISHES

GENERAL OFFICE: DuPont Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

EXPORT OFFICE: Nemours Building Wilmington 98, Delaware

PRospect 4-1000

REGIONAL OFFICES:

Atlanta 18, Georgia
Boston (Waltham) 54, Massachusetts
Chicago 46, Illinois

1737 Ellsworth Industrial Drive, N. W.
45 Fourth Avenue
7250 North Cicero Avenue, Lincolnwood
(Chicago Calls) INdependence 3-7250; (Others)
3133 Chester Avenue
8510 Ambassador Row
5-238 General Motors Building
6001 Manchester Trafficway
308 East Lancaster Avenue
1600 Trousdale Drive, Burlingame

SYcamore 4-9581
TWinbrook 9-8300
ORchard 5-1010
MAin 1-8516
FLeetwood 7-4611
TRinity 5-1990
EMerson 3-1390
TRinity 8-2700
OXford 7-3870

PLANTS AND WAREHOUSES (COMBINED):

Chicago 14, Illinois
Everett 49, Massachusetts
Fort Madison, Iowa
Philadelphia 46, Pennsylvania
South San Francisco, California
Tucker, Georgia

2100 Elston Avenue
59 Waters Avenue
Post Office Box 319
3500 Grays Ferry Avenue
160 South Linden Avenue—Post Office Box 608
Post Office Box 487

WAREHOUSES:

Albany 5, New York
Amarillo, Texas
Atlanta 18, Georgia
Baltimore 18, Maryland
Bangor, Maine
Birmingham 3, Alabama
Buffalo 25, New York
Canton 2, Ohio
Charlotte 3, North Carolina
Chicago 31, Illinois
Cincinnati 3, Ohio
Cleveland 14, Ohio
Columbus 12, Ohio
Dallas 21, Texas
Davenport, Iowa
Denver 2, Colorado
Detroit 34, Michigan
Fresno 1, California
Hartford 10, Connecticut
Houston 11, Texas
Indianapolis 7, Indiana
Jacksonville 1, Florida
Kansas City 41, Missouri
Knoxville 17, Tennessee
Long Island City 1, New York
Los Angeles 22, California
Louisville 16, Kentucky
Memphis 4, Tennessee
Miami, Florida
Milwaukee, Wisconsin
Minneapolis 4, Minnesota
Nashville 3, Tennessee
New Orleans 25, Louisiana
Oklahoma City 5, Oklahoma
Pennsauken, New Jersey

116 Railroad Avenue
900 South Georgia Street
1737 Ellsworth Industrial Drive, N. W.
400 East Twenty-Ninth Street
109 Hildreth Street
2301 Fifth Avenue, South
1696 Walden Avenue
205 Reynolds Place, S. W.
2500 South Boulevard
7327 West Agatite Avenue, Norridge
3001-17 Vine Street
3137 Chester Avenue
1450 Dublin Road
8510 Ambassador Row
1528-30 West Locust Street
555 Quivas Street
19930 Conner Avenue
1133 Belmont Ave.
635 New Park Avenue, West Hartford
332 South Wayside Drive
1825 West Eighteenth Street
2256 Dennis Street
6015 Manchester Trafficway
510 Williams Street
48-05 Van Dam Street
2000 South Garfield Avenue
3927 Park Drive, Shively
1573 Union Avenue
1730 N. W. 23rd Street
5200 North 124th Street
4317 Excelsior Boulevard
1406 Broad Street
4401 Euphrosine Street
208 East Hill Street
7300 Crescent Boulevard

ALbany 2-5711
DRake 3-2631
SYcamore 4-9581
TUxedo 9-6053
BANgor 2-0554
FAirfax 2-8775
KEystone 8242
GLendale 2-9830
EDison 2-3177
NAtional 5-7650
UNiversity 1-3414
MAin 1-8516
HUdson 6-7193
FLeetwood 7-4611
DAavenport 2-2861
AComa 2-8945
FOrrest 6-2245
ADams 7-4474
ADams 3-8297
WAlnut 3-2521
MEIrose 8-5593
ELgin 3-7461
EMerson 3-1390
STillwell 6-0200
RAYmond 3-8401
EMerson 8-1659
BRoadway 6-2745
NEwton 3-9815
HOpkins 3-0260
WAlnut 7-9797
ALPine 5-8486
AUDubon 6658
JACKson 5-2194
NORMandy 5-2720

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FINISHES DIVISION: Trade Sales Finishes

WAREHOUSES (Continued):

Pittsburgh 5, Pennsylvania
Portland 3, Maine
Portland 2, Oregon
Providence 3, Rhode Island
Roanoke 5, Virginia
Rochester 13, New York
Sacramento, California
Saginaw, Michigan
Salt Lake City 4, Utah
Seattle 9, Washington
Spokane 2, Washington
Springfield 4, Massachusetts
Springfield, New Jersey
Springfield, Pennsylvania
St. Louis 10, Missouri
Syracuse, New York
Tampa 2, Florida
Toledo 10, Ohio
Youngstown 3, Ohio

2222 Noblestown Road
255 Forest Avenue
5510 Southeast McLoughlin Boulevard
217 Broad Street
2710 Franklin Road, S. W.
95 La Grange Avenue
Folsom Boulevard and 60th Street
2506 Weiss Road
990 South Sixth Street, West
525 Boren Avenue, North
East 1035 Cataldo Avenue
233 Page Street
15 Stern Avenue
730 Baltimore Pike
2300 Hampton Avenue
Bridge Street, East
304 South Franklin Street
330 West Central Avenue
3203 Southern Boulevard

TELEPHONE

WAlnut 1-7000
SPruce 2-4657
BElmont 6-1139
GAspee 1-2709
DIamond 2-3176
GLenwood 3-2580
GLadstone 1-1074
SWift 2-0822
EMpire 4-3582
MAin 2-4165
HUdson 3-8111
REpublic 2-6216
DRexel 6-6070
Kingswood 3-2126
Mlission 7-0208
GRanite 2-0451
TAmpe 2-2414
CHerry 1-2197
STerling 8-9688

PRODUCTS

The following products are available in a wide variety of package sizes. Details on sizes available by each item can readily be determined by contacting any of the above listed locations.

ALUMINUM PAINTS

Aluminum Paint—Ready Mixed: A smooth flowing, brilliant aluminum finish for general interior and exterior use. Resin Base: Soya, chinawood, petroleum resin. USE: Masonry, brick, concrete, cement, metal roofs, structural steel, as a sealer for knots and sap streaks in wood.

"Dulux" All-Purpose Aluminum Paint Ready Mixed: A brilliant aluminum finish of unusual durability for exterior and interior use. USE: Masonry, wood, brick, concrete, cement, metal roofs, structural steel, tanks and galvanized metal surfaces which have been properly primed.

Heat Resistant Aluminum Paint Ready Mixed: A brilliant aluminum finish. USE: Exterior and interior use on hot surfaces; will withstand continuous temperatures up to 400°F. exterior; 800°F. interior.

Hi-Heat Resistant Aluminum Paint: A brilliant, durable, smooth flowing ready-to-mix aluminum finish for use on hot metal surfaces. Resin Base: Silicone resin. USE: Stacks, breechings, boiler fronts and other metal surfaces subjected to heat of 400°F. to 600°F. exterior; 400°F. to 900°F. interior.

Phenolic Aluminum Paint—Ready-to-Mix: Resin Base: Linseed oil, phenolic resin. USE: Exterior and interior surfaces where resistance to moisture and mild acid fumes is required.

CHEMICAL RESISTANT FINISHES

Corrosion resistant finishes are available to protect property from chemical attack in all phases of industry. When and where such conditions prevail, it is advisable to have our representative investigate the individual problem and write the painting specifications. Such inquiries are welcome and will receive prompt attention. Typical of

specialized products in this field are vinyls, phenolics, epoxies, elastomers, etc.

Acid and Fume Resistant Paints: Made especially for resisting the corrosive action of acid-fumes, spill of weak acids. Resin Base: Chinawood, phenolic resin. USE: Interior or exterior where the abnormal conditions described exist.

Chemical Resistant Coatings: Available in primer, intermediate and various colored topcoats. Resin Base: Vinyl resin. USE: For interior and exterior use where extreme resistance to abnormal chemical exposure is required.

"Dulux" Fume Resistant Yellow: For use in place of Safety Color Code High-Visibility Yellow in chemical plants. Resistant to discoloration from hydrogen sulfide and fading in acid or alkaline atmospheres.

Epoxy Chemical Resistant Finishes: Resin Base: Polyamide catalyzed epoxy resins. USE: Exterior and interior surfaces exposed to chemical fumes and occasional splashes.

COLOR CONDITIONING

A proved practical plan for the use of color, developed by Du Pont paint technicians working in collaboration with lighting and color specialists.

Color Conditioning makes scientific use of color to improve seeing conditions and increase efficiency in industrial plants, stores, hospitals, schools, offices and all types of public buildings.

Color Conditioning eliminates glare, reduces eyestrain and fatigue, makes color and light work together. Color Conditioning insures the selection of the right color for all interior surfaces. It has been tried and proved under actual operating conditions.

Three Dimensional Seeing, a part of Color Conditioning, embodies the principles of applying focal colors to machine tools to provide maximum visibility at the critical seeing area and the right color to the body of the machine, resulting in improved production, fewer seconds or rejects,

FABRICS AND FINISHES DEPARTMENT

and reduction in accidents. **Safety Color Code**, a part of Color Conditioning, comprises a uniform system of colors for identifying industrial hazards, thus contributing to industrial safety.

Color Conditioning Interior Flat Wall Enamel: A flat wall finish with easy working properties which dries to a fine-textured finish. Odorless formula means no pungent solvent odor during application. Excellent hiding, easy lapping, fast application. Acts as its own sealer over many surfaces. Dries overnight to a matte finish that can be easily washed. Resin Base: Soya-linseed-alkyd resin. USE: Interior walls and ceilings.

"Dulux" Color Conditioning Interior Gloss Enamel: Especially developed shades in full enamel finish; dries with a hard surface; highly resistant to marring; durable; washable. Odorless formula. Resin Base: Soya-linseed-alkyd resin. USE: Especially suited for use on dados, trim, cabinets, and similar surfaces in homes, factories, schools, institutions where unusual durability is required.

"Dulux" Color Conditioning Interior Semi-Gloss Enamel: A new "Dulux" semi-gloss finish for walls, ceilings, woodwork, cabinets in residential and commercial buildings. Easy application, excellent hiding and self-leveling. An extra-hard, durable finish that withstands repeated washing. Odorless formula. Resin Base: Soya-linseed-alkyd resin. USE: Interior walls, ceilings and trim.

"Dulux" Color Conditioning Machinery Enamel: A hard drying enamel for use on machinery and equipment, both indoors and out. Excellent resistance to chipping, grease and oil. Fast drying, extremely tough and durable. The colors in this line are those generally used by industry to carry out the principles of Three Dimensional Sealing. Resin Base: Soya-linseed-alkyd resin. USE: Exterior and interior: metal and wood surfaces; stationary and mobile machinery, plant equipment, pipe lines, etc.; farm and road machinery, vehicles, tools.

"Dulux" Color Conditioning Safety Color Code Enamels: These finishes make possible a system of color identification to promote safety. A high gloss durable finish for any type of surface—inside and out. Approved by the National Safety Council and American Standards Association. Resin Base: Soya-linseed-alkyd resin. USE: Exterior and interior: metal, wood and masonry. Farm and road machinery, vehicles, tools.

CUSTOM COLOR SYSTEM

The Custom Color System affords the professional and amateur decorator a choice of hundreds of odorless Custom Colors for interior painting. Universal Tinting Colors in tubes are added to Blending Bases to provide matching colors in Flat Enamel, Semi-Gloss Enamel, Gloss Enamel and "Flow Kote" Rubber Base Wall Paint. Universal Tinting Colors can also be added to 42 Chalk Resistant White House Paint; "Dulux" Stucco, Shake and Shingle Paint Tinting White, and "Dulux" Trim and Shutter White to arrive at specific durable exterior colors.

With the Custom Color System, the dealer has a choice of two methods of dispensing colorants: (1) Various size tubes of Universal Tinting Colors which are hand-squeezed into desired bases; (2) Universal Tinting Colors machine-dispensed through the DuPont Color Master mixing machine.

FINISHES DIVISION: Trade Sales Finishes

"DUCO" FINISHES

"Duco" Gloss Enamel: Quick drying enamel with durability, good flow, excellent hiding power. Dries to handle in a few hours. Odorless formula. Resin Base: Soya-linseed-alkyd resin. USE: Finishing furniture, indoors and out. Interior woodwork and walls, especially in kitchens and baths. Lawn furniture.

"Duco" Satin Sheen Enamel: Our highest quality semi-gloss enamel; high-hiding, quick-drying, easy brushing, smooth flowing; washable, durable. Formulated with odorless solvents. Resin Base: Soya-linseed-alkyd resin. USE: Interior walls, ceilings, trim and furniture, where a satin-like sheen is desired.

"Duco" Spray Magic Enamel: "Duco" Enamel in an aerosol can, white and colors. Handy, push-button spray application especially useful for appliances, tools, radiators, furniture, screens, and bicycles. Quick drying; hard, glossy finish. USE: Clean wood or metal surfaces, interior and exterior.

ENAMELS AND UNDERCOATS

Alkali Resistant Enamel: A medium gloss, chlorinated rubber base paint to serve as priming and finishing coats on surfaces subjected to abnormal exposure to alkali and moisture. USE: Unfinished interior cement and concrete floors and other interior unpainted masonry surfaces where alkaline conditions may develop due to dampness. Also recommended for use on protected exterior concrete floors subject to dampness from beneath. In industry where corrosive alkalies and moisture conditions exist.

"Black Jack" Sash and Screen Enamel: A low cost, high gloss black utility enamel. USE: For interior use on wood and metal surfaces; exterior use on screens and sash.

"Dulux" Bulletin Enamels: Our highest quality enamel for sign painting. Resin Base: Soya-linseed-alkyd resin. USE: Exterior and interior signs.

"Dulux" Fume Resistant High Hiding Maintenance White Gloss: Similar to "Dulux" High Hiding Maintenance White Gloss Enamel but completely lead free for use on walls, ceilings and trim where resistance to discoloration from industrial fumes (hydrogen sulfide, sulfur dioxide, etc.) is required. Resin Base: Soya-alkyd resin.

"Dulux" High Hiding Maintenance White Gloss Enamel: Similar to "Dulux" Maintenance White Gloss Enamel, but with increased hiding to provide one coat coverage over most previously finished interior surfaces. New odorless formula. Resin Base: Soya-alkyd resin. USE: Interior ceilings and walls of industrial plants. Not intended for use on trim.

"Dulux" High Hiding Mildew Resistant Maintenance White Gloss Enamel: Similar to "Dulux" High Hiding Maintenance White Gloss Enamel, but with unusual resistance to mildew and fungus growths. Resin Base: Soya-alkyd resin. USE: Interior walls, ceilings of industrial plants, factories, institutions, etc.

"Dulux" Maintenance White Gloss Enamel: Has excellent whiteness, retention of whiteness, durability and

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Trade Sales Finishes

general all-round performance. New odorless formula. Resin Base: Soya-alkyd resin. USE: Interior walls and ceilings of industrial plants, factories, institutions, etc.

"Dulux" Mill White Enamel Eggshell: A high hiding low eggshell finish, for use only on walls and ceilings of industrial plants, factories, etc. Not intended for use on trim. Resin Base: Soya-alkyd resin. USE: Interior walls and ceilings of industrial plants, factories, institutions, etc.

"Dulux" "Ovalite" Enamel Undercoat: Our finest odorless undercoat for use with all types of architectural enamels—gloss, semi-gloss, eggshell and flat. Dries quickly. Sands easily; flows out so smoothly that little sanding is required. "Ovalite" may be intermixed with all types of enamels for varying degrees of gloss. May be tinted with Universal Tinting Colors. Resin Base: Soya-linseed-alkyd resin. USE: As an undercoat for general interior use.

"Dulux" Super White Enamel: Available in three sheens: Gloss, Eggshell and Flat. Our finest interior white enamel made with odorless thinner. May be tinted to pastel shades with Universal Tinting Colors. Tough, durable, long wearing. Will withstand repeated washings. Resin Base: Soya-alkyd resin. USE: Interior trim, walls, cabinets and other wood, plaster and primed metal surfaces.

Mildew Resistant Enamel Undercoat: High resistance to mildew growths. Resin Base: Soya-alkyd resin. USE: As an undercoat for "Dulux" High Hiding Mildew Resistant Maintenance White Gloss Enamel.

Sanitary Gloss Enamel—Oyster White: A high gloss, durable, oyster white enamel. Highly resistant to mildew growth. Resin Base: Soya-alkyd resin. USE: Interior walls and ceilings of food processing plants under abnormal moisture conditions and where mildew control is important.

Sanitary Gloss Enamel White: A high gloss, durable white enamel. For use under abnormal moisture and damp conditions. Resin Base: Soya-alkyd resin. USE: Interior walls and ceilings.

Porch and Floor Enamel: A quick drying, high gloss finish that will stand hard wear. Especially formulated so as not to show dust and dirt readily. Resin Base: Soya-linseed-alkyd resin. USE: Exterior: porch floors, wood and concrete steps. Interior: wood floors, concrete floors that are dry and above grade.

"Tufcote" Heavy Duty Enamel: Extremely resistant to gasoline, oil or grease; quick drying. One coat is usually sufficient to cover previously painted surfaces. Colors match those of leading implement manufacturers. Resin Base: Soya-linseed-alkyd resin. USE: Exterior metal and wood: tractors, farm machinery, road equipment, wagons, tools, water pumps, wheelbarrows.

FLAT WALL PAINTS AND SEALERS

Wall Color Alkyd Flat Enamel: Odorless, alkyd wall enamel, applies easily by brush, roller, or spray. Self-sealing quality assures uniform color on new or old surfaces. Dries to a durable, low-sheen finish. White and colors to match "Flow Kote" Rubber Base Wall Paint and "Duco" Satin Sheen Enamel. USE: Interior walls, ceilings and woodwork.

Fire-Retardant Flat Wall Paint: Specially formulated to retard spread of flame. Dries to smooth, flat surface; washable. Listed by Underwriters' Laboratories. USE: Interior surfaces including wood, steel, plaster, composition board and other structural materials. Recommended for walls, ceilings, woodwork, beams, pillars, and trim.

One-Coat Basement Wall Paint: Ready-to-use acrylic latex paint for interior basement and garage walls. Heavy consistency allows one-coat application over rough, porous surfaces. Resists mildew, alkali, and moisture. USE: Porous surfaces such as cinder block, concrete block. Also poured concrete, plaster, and dry wall.

Primer-Sealer: A combined priming and sealing coat, for use on porous surfaces such as aged plaster, cement, concrete, brick, wallboard, etc. Prevents suction; holds out succeeding coats, creating a uniform surface. May be tinted with Universal Tinting Colors where colored top-coats are required. New odorless formula. Resin Base: Soya-linseed-alkyd resin. USE: Prime coat on interior plaster, masonry, wallboard and similar porous surfaces.

Sealer-Coater: A priming first-coater for two-coat-a-day painting systems. Dries rapidly to a dull luster. Brushes easily, has excellent hiding and sealing properties. No unpleasant odor. Resin Base: Vinyl emulsion. USE: Prime coat on interior walls and ceilings, either unfinished or previously finished surfaces.

"Speed Easy" Flat Wall Paint—White: An interior flat finish of the resin emulsion type. Made in semipaste form, requires reduction with water. Covers most surfaces in one coat, and dries so quickly that two coats may be applied the same day. No objectionable odor. Resin Base: Resin emulsion. USE: Interior: walls and ceilings; over wallpaper, plaster, brick, acoustical tile, wallboard, plywood, painted or unpainted surfaces.

Stippling Flat: Primarily intended for application by professional painters. For all forms of stippling and mottling. Made in white only, but may be tinted with Universal Tinting Oil Colors. Resin Base: Soya-linseed-alkyd resin. USE: Interior walls and ceilings.

"Town and Country" Flat White Enamel: New alkyd resin flat made especially for use by the Master Painter where a full bodied, washable interior flat is desired. Made only in white—may be tinted to any light color with Universal Tinting Colors. Processed with new odorless solvents for odor-free applications. Resin Base: Soya-linseed-alkyd resin. USE: Interior walls and ceilings.

"FLOW KOTE"

"Flow Kote" Rubber Base Wall Paint: A washable rubber base emulsion wall and ceiling paint. Easy to apply with brush or roller coater. Dries in 30 minutes to a velvet-like sheen. May be recoated in 3 to 4 hours. Shows no brush marks, laps or streaks. No disagreeable odor. Tough and durable. Unusually wear resistant. USE: Aged bare plaster, wallboard, wallpaper, and previously finished surfaces. Acts as its own primer on most old or new surfaces.

HOUSE PAINTS

Barn and Roof Paint: A ready mixed, durable, bright red oxide paint for exterior surfaces. Resin Base: Linseed oil. USE: Exterior use on barns, sheds, fences, etc.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Trade Sales Finishes

"Dulux" Stucco, Shake and Shingle Paint: A durable protective and decorative coating; seals the pores against moisture penetration; preserves the distinctive texture of original surfaces. The white is "self-cleaning" after a period of normal exposure; the colors are chalk resistant. Resin Base: Soya-alkyd resin. USE: Exterior: brick, cement, concrete, plaster, stucco, cement-asbestos siding.

"Dulux" Trim and Shutter Paint: For all outside trim work. Unusually resistant to mildew and fungus growths. Quick drying qualities minimize damage from dust and bugs. Resin Base: Soya-linseed-alkyd resin. USE: Exterior wood: shutters, lawn furniture, trim, doors. Exterior primed metal: roofs, hand rails, fences, lamps, poles.

"40" Outside White: Our highest quality white oil paint for use on structures which are painted all white. Use as white only; will fade if tinted. The combination of titanium pigments with other pigments results in a paint that is "self-cleaning" under normal exposure conditions. Easy brushing. Extra durable. USE: Exterior wood: body and trim on houses, barns, outbuildings, fences. Exterior metal: when properly primed.

House Paint Colors: For long life and long lasting good appearance. Easy to apply. Excellent coverage and hiding. USE: Exterior: body and trim of wood houses, barns and outbuildings; also on exterior metal trim which is properly primed. Deep colors intended only for trim purposes—shutters, blinds, doors, etc.

41 White Lead House Paint: Similar to "40" Outside White except that it is formulated with lead pigment. Easy to apply, excellent hiding. Medium gloss, self-cleaning. Not to be tinted. USE: Properly primed exterior wood or metal.

42 Chalk-Resistant White House Paint: Designed for (1) tinting with Universal Tinting Colors in producing special shades of house paint; (2) as a white to resist chalk staining of adjacent surfaces. Since it is slow-chalking, it does not have the "self-cleaning" properties of "40" Outside White.

USE: Exterior wood body and trim on houses, barns, out-buildings, fences, etc. Also on exterior metal which is properly primed.

"Lucite" Acrylic House Paint—50 Outside White; and Colors: Revolutionary new blister-resistant house paint based on acrylic resin emulsion formula. Dries to hard, low-sheen finish. When used with 49 Blister-Resistant Primer over bare wood, provides excellent resistance to moisture blistering, cracking, and peeling. Has unusual durability when applied according to directions. USE: New or burned off wood surfaces, previously painted firm surfaces; properly prepared masonry and metal surfaces.

Blister-Resistant Wood Primer—49 Outside White: New, penetrating wood primer, especially formulated for use with "Lucite" Acrylic House Paints to provide effective blister and crack resistance. USE: Over new or unpainted wood, or over wood from which the old finish has been completely removed; or as a prime coat over firmly-adhering old paint. May be tinted.

Fume Resistant Outside White: Lead free in pigment and drier; will not discolor in contact with hydrogen sulfide fumes found in industrial areas. Similar to "40" Outside White in other respects.

Masonry Block Primer: A very heavy semipaste paint designed for interior and exterior use in filling the voids of masonry blocks. Designed for use as a first coater to be followed by conventional interior or exterior finish coats, or can be used without topcoats to provide a heavy duty finish. Resin Base: Linseed oil.

39 Wood Primer White: Ready mixed primer designed for use on bare wood and badly weathered painted surfaces before applying house paints. Not to be used as finishing coat. USE: Exterior wood surfaces, body and trim when new or badly weathered.

Vinyl Masonry Paint: A vinyl emulsion coating. Its alkali resistance makes it an excellent finish for painted or unpainted stucco, cement, masonry, brick, asbestos shingles and siding, and asphalt composition shingles. No special primers are required. Resin Base: Polyvinyl acetate.

MARINE FINISHES

"Dulux" Marine Finishes: A special line of finishes for the pleasure-boat field; formulated to withstand water and harbor conditions such as salt spray, sun, and harbor gases. Quick drying; excellent durability; retain their gloss over long periods. The finishes include Yacht White Gloss, Semi-Gloss and Flat; Yacht Black; many attractive colors of Ship and Deck Finishes; Hard Racing Bottom Paints; Engine and Boot-Topping Enamels; Metal Primer; Paste Wood Fillers. The line also includes "Dulux" Clear Finish, "Dulux" Spar Finish, "Dulux" Clear Wood Primer, Ultra V Spar Varnish, and Anti-Fouling Bottom Paints.

METAL FINISHES AND PRIMERS

A great variety of primers are available for use in home and industry. While it is not practical to list all of them here, zinc chromates, red leads, primer-surfacers, zinc dust, heat resistant, etc., are included. Individually formulated for different metals such as: mill scale bearing steel, mill scale free steel, galvanized metal, copper, aluminum, stainless steel, and others.

"Antoxide" Metal Primer, Black: Resin Base: Alkyd resin, linseed oil primer. USE: Over rusted, hot rolled steel that has been hand cleaned. None of the conventional corrosion inhibiting materials are used.

"Duco" Anti-Rust Finishes: Special group of metal primers and top coats to provide highly dependable protection from rust and corrosion for all metal surfaces—and the perfect base for whichever Du Pont finish coat is to be used, interior or exterior:

"Duco" Anti-Rust Primer—No. 70 Red Lead: For damp-proof priming of rusted metal.

"Duco" Anti-Rust Primer—No. 546 Zinc Chromate: For clean steel, tin, and aluminum.

"Duco" Metal Primer—No. 783 White: For all new galvanized and copper surfaces.

"Duco" No. 71 Wrought Iron Black: Dull black finish for all metal surfaces.

"Duco" No. 544 Chrome Finish Aluminum: Bright aluminum finish rivals chromium for brilliance.

FABRICS AND FINISHES DEPARTMENT

FINISHES DIVISION: Trade Sales Finishes

"Dulux" Galvanized Metal Primer: Designed especially for use as a prime coat for galvanized metal surfaces. Eliminates need for special treatment of galvanized metal. Can be used as a finish coat, if desired. Resin Base: Linseed-alkyd resin. Use: Exterior and interior galvanized metal and copper surfaces.

"Dulux" Metal Protective Paints and Metal Primer: Afford maximum protection to metal surfaces. Resin Base: Soya-linseed-alkyd resin. Use: Interior: structural steel, tanks, girders and beams, doors, window frames and sash. Exterior: roofs, corrugated siding, tanks and supports, structural steel, bridges, doors, window frames and sash.

"Dulux" Tank Enamel White: An exceedingly white, durable, enamel type finish. Is "self-cleaning" under most conditions. Resin Base: Soya-alkyd resin. Use: As a finish for the outside of exterior metal storage tanks to reduce internal temperature.

"Dulux" Thermal Gray: Similar to "Dulux" Galvanized Metal Primer but for use on interior and exterior metal surfaces subject to temperatures up to 500°F. Resin Base: Linseed-alkyd resin.

"Dulux" Zinc Chromate Primer: Highest quality zinc chromate type primer for ferrous metal. Yellowish brown in color. Resin Base: Soya-linseed-alkyd resin. Use: For interior and exterior use on properly cleaned metal surfaces.

Heat Resistant Stack Paint—Black: A carbon black and graphite paint combined with treated oils which dry to a glossy finish. Resists heat and actually bakes while in service. Withstands temperatures up to 450°F. Use: Clean metal surfaces subject to heat contact.

No. 785 Metal Primer: A good quality general purpose red lead/iron oxide type dark brown metal primer. Use: Exterior and interior metal surfaces.

Sub-Marine Metal Primer: A zinc chromate-type primer for use on properly prepared ferrous metal subject to underwater exposure or conditions of extreme moisture. Yellowish brown in color. Resin Base: Chinawood oil, phenolic resin. Use: Inside or outside on properly cleaned metal surfaces subject to continual moisture or dampness.

OILS AND THINNERS

"Dulux" 200 Thinner: A special petroleum distillate for use with "Duco" Enamels and Clear Finishes, "Dulux" Paints and Enamels and with other products as directed on labels.

"Dulux" 711 Odorless Thinner: A new odorless thinner to be used only in those products where its use is specifically recommended on labels.

"Dulux" 710 Reinforcing Oil: A synthetic clear reducing oil. Resin Base: Soya-alkyd resin. Use: In reducing "Dulux" Exterior Finishes and Cement and Stucco Paint in accordance with directions.

STAINS

Satin Sheen Oil Stain: A pigmented, flat drying stain in a linseed oil, rosin vehicle. Available in all popular shades. Use: For staining all kinds of exterior and interior wood surfaces.

Shingle Stain: A high grade, pigmented stain, using processed vegetable and creosote oils. Penetrates into the wood. Use: Exterior shingle roofs and siding.

Varnish Stain: A high gloss, quick drying combination stain and varnish. Makes possible staining and varnishing in one operation. Highly resistant to marring. "Tufcote" Graining Ground is used when changing from a dark to a light surface. Resin Base: Phenolic resin, vegetable oil. Use: Interior: floors, woodwork and furniture.

PROFESSIONAL PAINTER LINE

This line of paints is especially designed for use by professional painters. All products are supplied in white, except for Professional Latex Wall Paint which features six colors in addition to white. The white goods may be tinted with Du Pont Universal Tinting Colors. Each finish in the Professional Painter Line offers fast and easy application, good hiding and excellent appearance.

VARNISHES

Clear Wood Sealer: Versatile, heavy-duty sealer for use under all varnishes for added beauty and durability. Dries fast, allowing sealer and topcoat varnish to be applied same day. Improves adhesion of varnishes over oil stains. Use: Any interior wood surface, including floors, paneling, trim, and furniture. Not for use under Penetrating Wood Finish.

"Dulux" Exterior Spar Varnish: Our highest quality exterior varnish; pale, high build, tough and elastic. Resin Base: Soya-alkyd resin. Use: Doors, furniture and miscellaneous small surfaces not fully exposed to the weather. Not recommended for siding and trim of houses.

"Dulux" Interior Varnish: Our highest quality high gloss interior varnish. Pale in color, easy brushing, hard drying; excellent resistance to alkali, hot and cold water, and alcohol. Quick drying. Resin Base: Linseed, ester gum, phenolic resin. Use: Floors, trim, bars and furniture.

"Dulux" Satin Sheen Varnish: Highest quality rubbed-effect varnish. Produces a uniform low sheen of satin smoothness. Easy to apply. Free flowing. Unexcelled for mar and water resistance. Resin Base: Soya-alkyd resin. Use: Interior trim, woodwork, wood paneling and furniture.

Industrial Floor Finish: A high quality, high gloss clear topcoat for use over a previous application of Penetrating Wood Finish. The combination of these two products offers durability, long service, quickness and ease of cleaning. Resin Base: Linseed rosin modified phenolic resin. Use: Gymnasium and industrial interior flooring where an extra durable clear finish is required.

Penetrating Wood Finish: A clear penetrating finish of great durability. Dries with a dull luster. Resin Base: Chinawood oil, phenolic resin. Use: Interior wood floors, wood paneling, wood trim and furniture.

Super Clear Varnish: A pale, high gloss varnish. Resists discoloration from contact with hot and cold water. Resin Base: Phenolic resin, rosin, tung and soya oils. Use: Interior: wood floors, woodwork and trim.

FABRICS AND FINISHES DEPARTMENT

Textile Floor Finish: A single package, oil-free urethane high-gloss clear for wood and concrete floors. Extremely wear-resistant. **USE:** Commercial application for floors subject to heavy traffic in textile mills, paper mills, industrial plants, or wherever a very tough and elastic clear coating is required.

MISCELLANEOUS

Paint & Varnish Remover: Non-flammable, water-rinse remover compounded to simplify the job of completely removing all types of finishes from wood, metal, plaster, masonry (and hardened paint brushes) without harming the surface. Heavy-bodied formula works equally well on vertical as well as horizontal surfaces.

Paste Wood Filler: A natural color semipaste wood filler of excellent quality. Requires reduction with turpentine or

FINISHES DIVISION: Trade Sales Finishes

mineral spirits for use. **USE:** Filling the grain of interior or exterior open-grained wood surfaces; also recommended for marine work.

Soil Retardant Finish: A transparent fluid containing colloidal silica. Possesses unique property of making a smooth painted surface so slick that dirt collection is minimized. **USE:** Commercial application on painted tanks, signs, buildings, service stations. Also interior surfaces.

Traffic Paint: Quick drying finishes for marking traffic lanes. **USE:** Exterior street surfaces, interior floors of industrial plants for marking aisle boundaries for general traffic control.

Universal Tinting Colors: For use with Custom Color white bases and ready-mixed shelf-goods colors and whites, including oil-base and emulsion finishes. Carefully controlled for tinting strength and color.

FILM DEPARTMENT

GENERAL OFFICE: Nemours Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

DISTRICT OFFICES:

Packaging Sales

Atlanta 9, Georgia	1430 West Peachtree Street, N. W.
Boston (Waltham 54), Massachusetts	45 Fourth Avenue
Chicago 3, Illinois	7 South Dearborn Street
Kansas City 5, Missouri	1004 Baltimore Avenue
New York 1, New York	Empire State Building, 350 Fifth Avenue
Philadelphia 3, Pennsylvania	1616 Walnut Street
San Francisco 4, California	111 Sutter Street, Room 1018

TRinity 2-5828
TWinbrook 9-8300
ANdover 3-7000
GRand 1-6629
LOngacre 3-6400
KIngsley 5-4050
EXbrook 2-0808

Industrial Sales

Chestnut Hill 67, Massachusetts	824 Boylston Street
Chicago 3, Illinois	7 South Dearborn Street
Cleveland 16, Ohio	20575 Center Ridge Road
Los Angeles 58, California	4455 Fruitland Avenue
(with Converter Sales)	
New York 1, New York	Empire State Building, 350 Fifth Avenue

TWinbrook 9-8300
ANdover 3-7000
EDison 3-1424
LUDlow 3-3171
LOngacre 3-6400

EXPORT SALES OFFICE:

Nemours Building Wilmington 98, Delaware

PLANTS:

Buffalo, New York	Clinton, Iowa	Old Hickory, Tennessee
Circleville, Ohio	Florence, South Carolina	Richmond, Virginia
	Tecumseh, Kansas	

WAREHOUSES:

Dallas, Texas	Los Angeles, California	Oakland, California	Seattle, Washington
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PRODUCTS

Acetate Film: A highly transparent film with good dimensional stability, produced from cellulose acetate. It is resistant to grease and oil.

KINDS: Rigid (CA-143) and flexible (CA-148).

THICKNESSES: From 0.00088 in. to 0.0020 in., with yields of 25,000 to 11,000 sq. in. per lb.

USE: Principally for laminations, foliation, document preservation, pressure sensitive tape; magnetic sound recording tape; window cartons and envelopes; packaging of items, such as textiles, paper specialties, etc.

AVAILABLE FORMS: Supplied by DuPont in rolls and cut-to-size sheets. Rolls are slit to order in 1/16-in. multiples; standard widths from 1½ in. to 48 in. Cut-to-size sheets are prepared according to specifications in dimensions up to 40 x 48 in.

Supplied in forms other than unprinted rolls and cut-to-size sheets by converters and fabricators, names of whom will be supplied upon request.

Cellophane:

KINDS: Basic film types include plain, semi-moistureproof, and moistureproof in a number of grades to meet the packaging requirements for many products. All types are transparent, strong, flexible, resistant to grease and oil and are

efficient for high speed machine wrapping. Newest addition to the line are the polymer coated types ("K" cellophanes). They provide superior appearance, moisture protection and durability, and are highly resistant to oil and grease. They are designed for use on a wide variety of products, including baked goods, cookies, potato chips, and candy. One type of "K" cellophane is non-fogging and opens up unusual packaging possibilities for frozen baked goods and other frozen foods.

THICKNESSES: From 0.0009 in. to 0.0018 in., with yields of 21,500 to 10,300 sq. in. per lb.

USE: Cellophane is used as a wrapper or bag to provide protective packages with maximum visibility of product and good merchandising qualities. Other uses include fabricated articles and industrial applications. Some of the major uses are:

Plain (non-moistureproof)—Paper, textiles, pressure sensitive tape and other fabricated articles.

Moistureproof (non-heat sealing)—Cigars, cigarettes, candy, cheese.

Moistureproof Heat Sealing—Bakery products, fresh meats, nuts, potato chips, dried fruit, frozen food, dairy products, cereals, candy, drugs, medical supplies, hardware, textiles.

FILM DEPARTMENT

Semimoistureproof—Fresh fruits and vegetables, luncheon meats, milk bottle hoods.

AVAILABLE FORMS: Supplied by DuPont in rolls and cut-to-size sheets. Rolls are slit to order in 1/16-in. multiples; standard widths from 1½ to approximately 46 in. Cut-to-size sheets are prepared according to specifications in dimensions up to approximately 40 x 50 in.

Supplied in printed bags, rolls, sheets and other forms by authorized converters and fabricators, names of whom will be supplied upon request.

"Mylar" Polyester Film: An exceptionally strong, durable film with an unusual balance of properties suited to many electrical, industrial and packaging uses. It has a high level of physical properties, is relatively moisture insensitive, is water vapor resistant, and is unaffected by and does not transmit oils, greases and volatile aromatics. It has excellent electrical properties and is compatible with most varnishes and enamels giving it broad utility in electrical applications. It retains these properties and is useful from -80°F. to over 300°F., with the exact temperature conditions depending upon the application.

KINDS: Seven available types include general purpose film suitable for electrical and other industrial applications; a special electrical grade film in thin gauges for capacitor applications; a transparent film in heavy gauges; a tensilized film for magnetic tape applications; a weatherable film for outdoor applications; heat sealing and heat shrinkable films for packaging.

THICKNESSES: From 0.00025 in. to .010 in., with yields from 80,000 to 2,000 sq. in. per lb.

USES: "Mylar" is suited to a wide range of applications:

Electrical:

Dielectric in capacitors; slot liners, wedges and phase insulation for motors; tape insulation for motor and generator field coils; a barrier and insulating tape in wire and cable constructions; insulation between turns in transformer coils; backing for mica and other materials for insulation purposes.

Other Industrial Uses:

Base for magnetic recording tape and pressure sensitive tapes; base for metallic yarns; base for metalizing, decorative laminations; surfacing material for acoustical tile; separator sheet for reinforced plastics; a base for cartography and drafting films; roll leaf base; decals; water vapor barriers; apparel and garment stays; and various stationery uses such as book covers, page protectors, display folders, index cards and a base for typewriter ribbons. Weatherable form provides a low cost outdoor construction and glazing material.

Packaging:

General packaging and wrapping, bundling, window boxes, bags, laminations, base for special coated film, heat shrinkable skin-tight packages for smoked meats, poultry and cheese.

AVAILABLE FORMS: Supplied in rolls and cut-to-size sheets. Rolls are slit in 1/16-in. multiples; standard widths from ½ in. to approximately 55½ in. Cut-to-size sheets are prepared according to specifications in dimensions up to approximately 43 x 43 in.

Polyethylene Film: A very lightweight, tough, flexible material that provides excellent resistance to the transmission of moisture vapor. The film remains pliable to -70°F., resists cracking, and is chemically inert and impervious to acids, alkali, most solvents, mildew and fungus. It is odorless and nontoxic.

THICKNESS: Films in thicknesses from 0.001 in. to 0.010 in. with yield from 30,000 sq. in./lb. to 3,000 sq. in./lb. Greater thicknesses available on special quotation basis.

AVAILABLE FORMS:

Construction and Agriculture:

One and one-half (1½) to 10 mil flat sheeting in natural and black. Widths from 12 in. to 40 ft. Also SR-300 weatherable polyethylene lasting 3 to 4 times longer than standard natural polyethylene.

Industrial:

Flat sheeting in natural and black available in thicknesses from 1 to 10 mil. Widths from 1½ in. to 56 in. White opaque films in thicknesses from 1 to 3 mil. Widths 1½ in. to 56 in.

Packaging:

High clarity films in thicknesses of 1, 1¼, 1½ and 2 mil. Widths available in flat sheeting up to 48 in.

USES: In construction and agriculture: As a moisture barrier, pond liner, irrigation, temporary silo, glazing, flashing and mulching. **Industrial:** Laminations, fabric replacement and pressure sensitive tapes. **Packaging:** Consumer goods in bags and overwrap packages.

"Teflon" FEP-Fluorocarbon Film: An impermeable, heat sealable film produced by melt extrusion of "Teflon" FEP-Fluorocarbon resin. The film is unaffected by all solvents and practically all chemicals; has outstanding electrical properties; is capable of continuous service at 400°F.; can be heat formed to fit complex shapes and can be heat bonded under pressure to many metals; has good low temperature toughness, excellent antistick properties; can be treated to make it receptive to conventional adhesives.

Uses for the film are in printed circuitry and flexible cable, capacitors, wire and cable, gaskets, seals, and release applications.

"Vexar" Plastic Netting: Integrally extruded plastic mesh material available in a wide variety of forms and colors.

"Vexar" Plastic Netting is produced from both low and high density polyethylene and polypropylene, and exhibits the outstanding chemical inertness and resistance to moisture, rot, and mildew which are characteristic of these resins. Mesh size and filament diameter may be varied over a broad range to give products suited to a wide variety of applications. It is available in commercial quantities as sheeting, lay-flat tubing, rigid piping, and fabricated bags.

Uses for "Vexar" include packaging, particularly produce for which product ventilation is desirable, shelf lining, decorative covers, filtration, display materials, fabric replacement, and many others.

FILM DEPARTMENT

"CEL-O-SEAL" BANDS DIVISION

GENERAL OFFICES: Buffalo 7, New York River Road, Station B

TELEPHONE
TR-6-4420

EXPORT SALES OFFICES: Same as above

PLANT:

Buffalo, New York

PRODUCTS

"Cel-O-Seal" Cellulose Bands: Are regenerated cellulose; odorless, non-combustible, harmless; resistant to oils, fats, dirt and dilute acids.

STYLES AND SIZES: Furnished in a wide range of sizes as: transparent, opaque, fluorescent, metallic, metallic pastels and "Wind-O-Band" seals. May be obtained in black, white or a wide variety of standard colors. Can be attractively printed in a wide range of colors to personalize and complement individual designs. Widely used for sealing closures on foods, drugs, wines, beverages, aero-

sols, chemicals and miscellaneous products. Bands may be hand or machine applied. Regularly shipped in a solution, ready to use directly from containers.

"WIND-O-BAND" CELLULOSE SEALS: Made with opaque front and back and transparent sides for the distilled spirits industry to provide decorative and positive package sealing and approved Federal tax stamp protection. They are sold only to licensed bottlers of distilled spirits and other manufacturers who place U. S. Tax Stamps on their products.

INDUSTRIAL AND BIOCHEMICALS DEPARTMENT

GENERAL OFFICE: Du Pont Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

DISTRICT OFFICES—INDUSTRIAL CHEMICALS:

Atlanta 8, Georgia	739 West Peachtree Street	TRinity 6-1586
Chicago 32, Illinois	4251 South Crawford Avenue	CLiffside 4-7676
Cincinnati 2, Ohio	2308 Carew Tower	CHerry 1-4570
Cleveland 14, Ohio	1321 National City Bank Building	MAin 1-6460
Detroit 35, Michigan	13000 West Seven Mile Road	UNiversity 4-1963
Houston 27, Texas	4215 Richmond Avenue	MOhawk 6-0251
Minneapolis 2, Minnesota	1207 Foshay Tower	FEderal 5-4181
New Haven 13, Connecticut	46 River Street	LOcust 2-5145
New York 1, New York	350 Fifth Avenue	LONGacre 3-6456
Pittsburgh 19, Pennsylvania	1715 Grant Building	GRant 1-5427
St. Louis 5, Missouri	10 South Brentwood Boulevard	PArkview 6-1400
Waltham 54, Massachusetts	45 Fourth Avenue	TWInbrook 9-8300
Wynnewood, Pennsylvania	308 East Lancaster Avenue	TRinity 8-2700

DISTRICT OFFICES—BIOCHEMICALS:

Atlanta 8, Georgia	739 West Peachtree Street	TRinity 6-1586
Houston 27, Texas	4215 Richmond Avenue	MOhawk 6-0251
Minneapolis 2, Minnesota	1207 Foshay Tower	FEderal 5-4181
Palo Alto, California	701 Welch Road	DAvenport 6-6044
Western Springs, Illinois	40-47th Street	CHestnut 6-5902
Wynnewood, Pennsylvania	308 East Lancaster Avenue	TRinity 8-2700

PLANTS:

Belle, West Virginia	East Chicago, Indiana	Philadelphia, Pennsylvania
Bellwood, Virginia	Ecorse, Michigan	Strang, Texas
Cleveland, Ohio	Fortville, Indiana	Toledo, Ohio
Cornwells Heights, Pennsylvania	Grasselli, New Jersey	Wurtland, Kentucky
	Miami Fort, Ohio	

*Van Waters and Rogers, Inc., are exclusive Western agents with offices in: Albuquerque, Boise, Denver, El Paso, Los Angeles, Phoenix, Portland, Salt Lake City, San Diego, San Francisco, Seattle, Spokane and West Sacramento. See local phone books for addresses.

PRODUCTS

*INDICATES RESALE PRODUCTS

INDUSTRIAL CHEMICALS

Acetic Acid—Glacial—Reagent (Ethanoic Acid, Vinegar Acid)—CH₃COOH: Clear colorless liquid with pungent odor; crystallizes to a solid at 60°F. (15.6°C.); soluble in water, alcohol and ether; Sp. Gr. 1.048; B. P. 117.8°C. **USE:** As a reagent in chemical analysis or where an especially high purity acid is required. **CONTAINERS:** 1- and 5-pt., 6½- and 13-gal. carboys.

Adhesives No. 60, No. 77, No. 78 and No. 78X: Vinyl resin base white powders; soluble in water at elevated temperatures and with proper agitation. **USE:** As an adhesive for laminated paperboard. The bond made between flat surfaces of paperboard withstands long exposure to water without ply separation. **CONTAINERS:** 50-lb. paper bags.

Adipic Acid—(CH₂)₄(COOH)₂: White crystalline solid; M. P. 152°C.; soluble in alcohol; slightly soluble in water. **USE:** In manufacture of plasticizers and polyester resins; in organic synthesis; as an edible food acid. **CONTAINERS:** 50-lb. paper bags.

***Alum, Ammonium:** (See Aluminum Ammonium Sulfate, Page 49.)

Alum—Iron Free: (See Aluminum Sulfate—Iron Free, Page 49.)

***Alum, Potash:** (See Aluminum Potassium Sulfate, Page 49.)

INDUSTRIAL AND BIOCHEMICALS DEPARTMENT

INDUSTRIAL CHEMICALS

***Aluminum Ammonium Sulfate—N. F. and Technical (Ammonium Alum, Crystal Alum)— $(\text{NH}_4)_2\text{SO}_4 \cdot \text{Al}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$:** Clear colorless crystals, lump, granules or powder; soluble in water and glycerin; insoluble in alcohol. **USE:** In leather and fur tanning; baking powder; printing and dyeing fabrics; in pharmaceuticals and styptic products; for brining of pickles. **CONTAINERS:** 100-lb. paper bags, 100-lb., 325-lb. and 400-lb. fiber drums.

Aluminum Chloride—Technical— $\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$ —Crystal: Pale yellowish, granular, slightly odorous, deliquescent crystals; contains 96.5% $\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$; soluble in water, alcohol and ether. **Solution:** 50% $\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$ in water. Clear, water white, corrosive liquid; miscible with water, alcohol and ether; gravity 32° Bé. **USE:** In photographic fixing baths; in manufacture of dry colors, aluminum hydroxide gel, and roofing granules. **CONTAINERS:** Crystals—300-lb. polyethylene-lined fiber drums. **Solution:** 325-lb. polyethylene drum (fiber overpack), tank cars and tank trucks.

Aluminum Complex 101—Technical: A Werner type aluminum complex in isopropanol. **USE:** As a water repellent and sizing treatment for paper, textiles and other materials; for treatment of leather, masonry and other negatively charged surfaces; and for insolubilizing various water soluble or swellable coatings. **CONTAINERS:** 6½-gal. carboys.

***Aluminum Potassium Sulfate—N. F. and Technical (Potassium Alum, Potash Alum)— $\text{K}_2\text{SO}_4 \cdot \text{Al}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$:** Clear, colorless crystals, lump, granules or powder; soluble in water; insoluble in alcohol; M. P. 92°C. **USE:** In manufacture of photographic film hardeners, pharmaceuticals, as a tanning agent. **CONTAINERS:** 100-lb. paper bags, 100-lb., 350-lb. and 400-lb. fiber drums.

Aluminum Sulfate—Iron Free—U.S.P., Food Processing and Technical— $\text{Al}_2(\text{SO}_4)_3 \cdot 18\text{H}_2\text{O}$: White lumps or granules; soluble in water; insoluble in alcohol. **USE:** In manufacture of aluminum soaps, printing inks and lake colors; in tanning of white leather; in sizing and coating of paper; baking powder; in pharmaceuticals and styptic products; for brining of pickles. **CONTAINERS:** 100-lb. bags.

Amine 248: Amber colored, non-volatile amine slurry with bis-(hexamethylene) triamine and its homologues as principal components. Density is 0.9930 at 25°C. 60% distills between 125–245°C. at 35 mm. pressure. **USE:** Polyamide resins, curing agent for epoxy resins, water treatment and corrosion inhibitor formulations and absorbing medium for acid gases. **CONTAINERS:** 55-gal. drums and tank cars.

Ammonia—Aqua— NH_4OH : (See Ammoniacal Liquor, below.)

Ammoniacal Liquor (Ammonium Hydroxide)— NH_4OH : Water-white liquid; 26° Bé. at 60°F. containing 29.4% NH_3 by weight. Sp. Gr. 0.8974 at 60°F. (15.6°C.). **USE:** Manufacture of ammonium salts and other chemicals; in household ammonia and other cleaning agents; as a neutralizing agent; for pH control; in water purification; ingredient in ink and photographic developers; hydrolysis of gelatin and glue. **CONTAINERS:** 7,000-, 8,000- and 10,000-gal. tank cars.

***Ammonium Alum:** (See Aluminum Ammonium Sulfate, this page.)

Ammonium Chloride—Technical (Chloride of Ammonia, Sal Ammoniac, Muriate of Ammonia)— NH_4Cl : Granules, crystals and rods; soluble in water and glycerin; slightly soluble in alcohol; sublimes when strongly heated; Sp. Gr. approximately 1.53. **USE:** As a flux for hot dip galvanizing sheet steel and other steel products; as a flux in the electrolytic refining of zinc. **CONTAINERS:** 100-lb. paper bags, 300-lb. fiber drums.

***Ammonium Chloride—White Fines Technical (Chloride of Ammonia, Sal Ammoniac, Muriate of Ammonia)— NH_4Cl :** White, crystalline powder; soluble in water and glycerol; Sp. Gr. 1.52; sublimes when strongly heated. **USE:** As an ingredient in dry batteries and cells; in galvanizing fluxes; in the manufacture of leather; in manufacture of roofing granules. **CONTAINERS:** 100-lb. bags, 275-lb. bbl.

Ammonium Hydroxide—Reagent (Aqua Ammonia, Ammonium Hydrate)— NH_4OH : Clear, colorless solution with pungent odor; Sp. Gr. approximately 0.9; F. P. below -40°C.; 27–30% NH_3 . **USE:** As a reagent in chemical analysis where especially high purity is required. **CONTAINERS:** 1- and 5-pt. bottles, 6½- and 13-gal. carboys.

Ammonium Hydroxide: (See Ammoniacal Liquor and Aqua Ammonia 26°, this page.)

Ammonium Sulfamate— $\text{NH}_4\text{SO}_3\text{NH}_2$: White, crystalline, hygroscopic solid; extremely soluble in water; moderately soluble in glycerin, glycol and formamide. **USE:** For retarding flame in textiles and paper products (See "CM" Flame Retardant, Page 43 and "X-12" Flame Retardant, Page 49); in electroplating solutions. **CONTAINERS:** 50-lb. fiber drums, 100-lb. paper bags.

Ammonium Sulfate—Technical— $(\text{NH}_4)_2\text{SO}_4$: White crystalline material; very soluble in water; insoluble in alcohol; decomposes at 100°C. **USE:** As a nutrient in production of yeast, as a flame retardant for wood, textiles, etc.; for ammonia-chlorine disinfection of water; as an ingredient in cleaning compounds and electroplating solutions; in dyeing textiles and manufacture of ammonium salts; not for fertilizer use. **CONTAINERS:** 100-lb. paper bags, bulk.

Anisole—Technical (Phenyl Methyl Ether)— $\text{C}_6\text{H}_5\text{OCH}_3$: A clear mobile liquid with a light ethereal odor, insoluble in water, soluble in alcohol and ether. B. P. 153.8°C.; F. P. -37.3°C. **USE:** As a chemical intermediate in alkylation, acylation, halogenation and nitration reactions; as a solvent reaction medium; as a heat transfer medium. Anisole has high heat stability, high flash point, low vapor pressure and low order of toxicity. **CONTAINERS:** 5- and 55-gal. drums, tank cars, and tank trucks.

Aqua Ammonia 26° U. S. P. (Ammonium Hydroxide, Ammonia Hydrate)— NH_4OH : Clear, colorless solution, characterized by sharp, penetrating ammonia odor. Sp. Gr. approximately 0.9; F. P. below -40°C.; 26° Bé., 29.4% NH_3 . **USE:** As an emulsion stabilizer; in the manufacture of ammonium salts and cuprammonium rayon; in house-

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hold ammonia water; in textile scouring, dyeing and mildew-proofing; for glass cleaning in manufacture of mirrors; in saponifying fats and oils; for yeast foods; in manufacture of ink, varnishes, soap, resins, rubber and leather; in electroplating and photoengraving. CONTAINERS: 96-lb. carboys, 385-lb. steel drums, tank trucks.

Battery Acid (Electrolyte Acid, Storage Battery Acid, Sulfuric Acid)— H_2SO_4 : Clear, colorless, corrosive liquid available generally at Sp. Gr. 1.835. Inquiries for special strengths are invited. USE: As electrolyte in lead type storage batteries. CONTAINERS: 130- to 200-lb. glass carboys, tank cars, and tank trucks.

n-Butanol Formaldehyde 51-40: A clear, colorless reaction product containing 40% formaldehyde, 51.5% n-butyl alcohol, and 8.5% water. Density 8.1 lb./gal.; viscosity 5.1 cp. at 25°C. USE: In manufacture of resins for textile, paper, and paint applications; chemical synthesis. CONTAINERS: 55-gal. drums; 4,000-gal. tank trucks (within a 200-mile radius of Perth Amboy, New Jersey); 8,000-gal. tank cars.

Calcium Propionate: (See "Mycoban" Calcium Propionate, Page 54.)

***Caustic Soda:** (See Sodium Hydroxide, Page 56.)

Cetyl Alcohol: (See "Lorol" 24 Cetyl Alcohol, Page 53.)

Chlorosulfonic Acid—Technical— $ClSO_3H$: Clear, colorless to light straw colored, oily, fuming, corrosive liquid with pungent odor; decomposed by water or alcohol; Sp. Gr. approximately 1.75; F. P. below -37°C.; B. P. 154°C.; minimum 98.5% $ClSO_3H$. USE: In sulfation and sulfonation of organic compounds for manufacture of sulfonated oils, intermediates for dyes and pharmaceuticals, pesticides, detergents and ion exchange resins; for production of anhydrous HCl and smoke-producing chemicals. CONTAINERS: 700-lb. steel or stainless steel drums, tank cars, and tank trucks.

Chrome Complexes: A group of Werner type chromium complexes of carboxy acids in isopropanol. Now available are the complexes of the following acids: aminoacetic, p-aminobenzoic, cyanoacetic, gluconic, 2,4-hexadienoic, hydroxyacetic, mercaptoacetic, p-nitrobenzoic, betaresorcylic, tannic, and trichloroacetic. Others can be made available. (See also "Quilon" chrome complex and "Volan" bonding agent.) USES: For changing the surface characteristics of materials such as glass, natural or synthetic fibers, metal oxides, wood, paper, etc., to serve as anchoring agents for resins and other polymers, as absorbers of ultraviolet light, as anti-static agents, and many other possibilities. CONTAINERS: 6½ gal. carboys.

"CM" Flame Retardants: Fine, white, granular composition based on ammonium sulfamate and modified to prevent afterglow and to improve penetration. Soluble in water; insoluble in the common dry cleaning solvents. (See Ammonium Sulfamate, Page 49 and "X-12" Flame Retardant, Page 58.) USE: In flame retardant treatment of fabrics, paper, paper products and other cellulosic materials. CONTAINERS: 50-lb. fiber drums, 100-lb. paper bags.

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***Copper Sulfate—Technical (Cupric Sulfate, Blue Vitriol, Bluestone)— $CuSO_4 \cdot 5H_2O$:** Blue, crystalline, granular or powdered material; soluble in water and alcohol; effloresces in dry air; Sp. Gr. 2.286. USE: As a germicide; in manufacture of stock powders; in the drawing of wire; in compositions for wood preserving. CONTAINERS: 100-lb. bags.

***Copperas:** (See Ferrous Sulfate, Page 51.)

Copperized CZC Chromated Zinc Chloride—Technical— $CuCl_2$, $ZnCl_2$, and $Na_2Cr_2O_7$: Granular material with slight brownish color or 50% water solution. A companion product to CZC chromated zinc chloride for wood preservation. Possesses increased and exceptional preservation value and termite repellency and the treated wood is clean, odorless, paintable and flame retardant. CONTAINERS: Dry—50- and 575-lb. drums. Solution—Tank cars.

Cyclohexanol: (See "Hexalin" Cyclohexanol, Page 52.)

Cyclohexanone: (See "Hytrol" O Cyclohexanone, Page 53.)

CZC Chromated Zinc Chloride—Technical— $ZnCl_2$, and $Na_2Cr_2O_7$: Granular material with slight brownish color or 50% water solution. **Solution:** Gravity about 51.7°Bé.; F. P. -37.2°C. USE: For preserving wood against decay, termite attack and for application as a flame retardant. Treated lumber is clean, odorless, paintable, safe to handle and flame retardant. CONTAINERS: Dry—50- and 625-lb. drums. Solution—Tank cars.

Decanol: (See "Lorol" 22 n-Decanol, Page 53.)

1,4 Dichlorobutene-2— $ClCH_2CH=CHCH_2Cl$: Available as trans isomer in 95-98% purity. Vesicant colorless liquid of density 1.18-25/4°C.; atmospheric boiling point 158°C.; soluble in hydrocarbons. USE: Intermediate in manufacture of unsaturated difunctional compounds, electroplating chemicals, biologically active compounds, and textile treating compounds. CONTAINERS: 55-gal. drums and tank cars.

Diethylamine—Technical— $(CH_3CH_2)_2NH$: Colorless liquid; B. P. 55.4°C.; Sp. Gr. 0.706; miscible with water and most organic solvents. USE: In the synthesis of rubber chemicals, pharmaceuticals, pesticides, fungicides, herbicides, corrosion inhibitors, and textile softeners, wetting agents, and emulsifiers. CONTAINERS: 5- and 55-gal. drums; and tank cars.

Diglycolic Acid— $O(CH_2COOH)_2$: White crystalline solid; M. P. (pure) 148°C.; soluble in water and alcohol; pH of 10% aqueous solution 1.4. Forms a nonhygroscopic monohydrate at relative humidities above 72% at 25°C. USE: In manufacture of resins and plasticizers; in organic synthesis; sequestering agent; emulsion breaker in petroleum, and coagulant in rubber and plastics. CONTAINERS: 50-lb. paper bags.

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Dimethylamine—DMA—Anhydrous and Aqueous Solutions—Technical— $(\text{CH}_3)_2\text{NH}$: Anhydrous—colorless gas, clear and water white when liquefied. **USE:** Intermediate in the manufacture of rubber accelerators and quaternary compounds; in manufacture of pharmaceutical intermediates, fungicides and herbicides; as a dehairing agent in leather processing; in manufacture of solvents and rocket fuels. **CONTAINERS:** Anhydrous—100-lb. cylinders, tank trucks, tank cars. Aqueous solution—55-gal. drums, tank cars and tank trucks.

Dimethyl Sulfate (Methyl Sulfate)— $(\text{CH}_3)_2\text{SO}_4$: Water-white liquid; F. P. -31.8°C ; B. P. 188.8°C ; Sp. Gr. $(15.6^\circ/15.6^\circ\text{C})$ 1.332. **USE:** As a methylating agent in making intermediates, dyes and synthetic drugs. **CONTAINERS:** 10- and 55-gal. drums, 8,000-gal. tank cars.

DMAC—Dimethylacetamide—Technical— $\text{CH}_3\text{CON}(\text{CH}_3)_2$: Colorless liquid; B. P. 165.5°C ; F. P. -20°C ; Sp. Gr. 0.945; miscible with water and common organic solvents. **USE:** As a solvent for polyacrylonitrile, vinyl resins, cellulose derivatives, styrenes, linear polyesters, and paint removers. As a catalyst and solvent in elimination, halogenation, cyclization, alkylation, interesterification, phthaloylation reactions and others. **CONTAINERS:** 5- and 55-gal. drums, and tank cars.

DMF—Dimethyl Formamide—Technical— $\text{HCON}(\text{CH}_3)_2$: Colorless liquid; B. P. 153°C ; F. P. -61°C ; Sp. Gr. 0.953; miscible with water and common organic solvents. **USE:** As a solvent for vinyl resins in lacquers, films and printing inks, for pigments, dyes and inorganic salts. As a catalyst and solvent in many types of organic reactions such as halogenation, alkylation, elimination, cyclization and many others. As a reaction medium in dyes; as a selective refining solvent for acetylene, acid gases and petroleum constituents. **CONTAINERS:** 5- and 55-gal. drums, tank trucks, tank cars.

***Disodium Phosphate:** (See Sodium Phosphate—Di, Page 56.)

"Duclean" No. 1 Inhibited Sulfuric Acid—Technical (60° B ϕ . Sulfuric Acid Containing an Acid Pickling Inhibitor): Clear, reddish-brown liquid; miscible with water; Sp. Gr. 1.706; F. P. below -10.8°C . **USE:** In pickling iron and steel; for descaling and cleaning of steel and other metals under conditions where it is desirable to inhibit the acid corrosion of steel and ferrous alloys. **CONTAINERS:** 185-lb. glass carboys, 700-lb. drums, tank cars, and tank trucks.

"Duclean" No. 2 Hydrochloric Acid Solution Inhibited—Technical: Clear, water white liquid with pungent odor; miscible with water; Sp. Gr. 1.142; F. P. below -40°C . **USE:** In pickling iron and steel; for removing deposits, including hard water scale, hydrated iron and rust from evaporators, condensers, water distributing lines, water well screens, etc., where it is important to inhibit acid corrosion of steel and other ferrous metals. **CONTAINERS:** 125-lb. glass carboys, tank cars, and tank trucks.

Engraver's Acid: (See Nitric Acid—Technical and Engraver's Quality, Page 54.)

Fatty Alcohols: (See "Lorol" Fatty Alcohols, Page 53.)

***Ferrous Sulfate—Technical (Copperas, Green Vitriol, Iron Sulfate)**— $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$: Bluish-green crystals, granular or powdered material; soluble in water; insoluble in alcohol; Sp. Gr. 1.898; M. P. 64°C . **USE:** In manufacture of iron salts, pigments, dry colors, indigo dyes; as a mordant in dyeing and printing textiles; for purification processes in gas, sewage and water plants; in manufacture of brick. **CONTAINERS:** 100- and 200-lb. bags, 300- to 400-lb. bbl., bulk.

Flame Retardants: (See Ammonium Sulfamate, Page 49, "CM" Flame Retardant, page 50, and "X-12" Flame Retardant, Page 58.)

Flux, Galvanizing: (See Zinc Ammonium Chloride, Page 58 and Ammonium Chloride, Page 49.)

Flux, Soldering—"Eureka" Soldering Flux Crystal—Zinc Chloride + Ammonium Chloride: White, crystalline powder; soluble in water. **USE:** As a flux in soft soldering operations and preparation of liquid soldering fluxes. **CONTAINERS:** 50- and 600-lb. steel drums.

Flux, Soldering—"Kleanrol" Soldering Flux Crystal—Zinc Chloride + Ammonium Chloride: White, crystalline powder. **USE:** As a solder blanket flux in automatic soldering of side-seams in manufacture of tinned containers. **CONTAINERS:** 50- and 500-lb. drums.

Fluxes, Soldering Liquid—Triple "Eureka" and "Eureka" Soldering Flux: Clear, colorless water solutions based on zinc chloride and containing other ingredients. Various gravities and compositions. **USE:** General soft soldering and solder and lead-coating fluxes for use in the automotive, can, refrigeration, wire and other industries. **CONTAINERS:** 145-lb. carboys, 605-lb. drums.

Fluxes, Tinning—Standard and "High Speed" Tinning Flux 50°: Clear, colorless water solution of zinc chloride and ammonium chloride; Sp. Gr. 1.526; F. P. below -50°F . **USE:** As fluxing solutions in manufacture of tin plate,terne plate, tin strips, dairy equipment, refrigerator trays, automobile radiators, wire goods, etc. **CONTAINERS:** 165-lb. carboys, 670-lb. drums.

Formaldehyde Solution (Formalin)— CH_2O : A clear, colorless, aqueous solution. **USE:** In manufacture of phenolic and urea resins; in manufacture of casein plastics, dyes, chemicals for textile industry, and embalming fluids; in paper, leather and cork products; as a disinfectant, deodorant, preservative; for treatment of seeds and soil; for chemical synthesis.

LOW METHANOL GRADES: 37% formaldehyde by weight, max. 1% methanol by weight; 45% and 50% formaldehyde by weight, max. 2% methanol by weight. **CONTAINERS:** Tank trucks 26,000- to 38,000-lb. (within 200-mile radius of Perth Amboy, New Jersey and Toledo, Ohio); 72,000-lb. tank cars.

U.S.P. GRADES: 37% formaldehyde by weight, 6.5%–15% methanol by weight. **CONTAINERS:** 25-lb. cases (lb. bottles); 100-lb. carboys; 90- and 475-lb. drums; 26,000- to 38,000-lb. tank trucks (within a 200-mile radius of Perth Amboy, New Jersey and Toledo, Ohio); 72,000-lb. tank cars.

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Formamide—Technical—HCONH₂: Colorless, viscous hygroscopic liquid; B. P. 210°C.; F. P. 2.5°C. USE: Exceptionally good solvent; softener (e.g., in paper, glues); chemical intermediate. CONTAINERS: 55-gal. drums, 8,000-gal. tank cars.

Formic Acid—Technical (Methanoic Acid)—HCOOH
In Water Solution: Colorless liquid with irritating and penetrating odor; soluble in water, alcohol, ether and glycerin.

	85% STRENGTH	90% STRENGTH
Sp. Gr.	1.201	1.210
F. P.	9°F.	24°F.

USE: In dyeing, printing and finishing of textiles; in manufacture of formates, fat and oil hydrogenation catalysts, synthetic camphor, pharmaceutical intermediates, solvents; for dyeing and deliming in tanning leather; manufacture of vinyl resin plasticizers; in electroplating; for coagulation of rubber latex. CONTAINERS: 125- and 127-lb. carboys, 515- and 525-lb. drums, tank cars, and tank trucks.

"G-942" Tanning Agent: An aqueous solution of the partial sodium salt of a polymeric carboxylic acid. USE: In processing light-weight skins for the production of high grade suede and grain leathers. Excellent properties for white clear through leathers. Possesses high skin-plumping ability. CONTAINERS: 500-lb. drums.

"G. B. S." Globular Sodium Bisulfate—Technical: (See Sodium Bisulfate, Page 56.)

Glycolic Acid: (See Hydroxyacetic Acid.)

"Hexalin" Cyclohexanol—C₆H₁₁OH: Colorless liquid; F. P. (pure) 25.2°C. (usually shipped with 2.25% methanol as anti-freeze); B. P. (pure) 161.1°C. USE: Solvent in lacquers, shellacs and varnishes; homogenizer and stabilizer in soap, drycleaning and textile industries; intermediate for chemicals, plasticizers, lubricating oil additives. CONTAINERS: 55-gal. drums, 8,000- and 10,000-gal. tank cars and tank trucks.

Hexamethylenetetramine (Urotropin, Hexamine)—(CH₂)₆N₄: A white powder or granular solid; soluble in water, chloroform, and alcohol. At 263°C. it sublimates without melting; on contact with fire, it readily ignites and burns with a smokeless flame. USE: In manufacture of phenolic molding resins, cork products, rubber accelerators, and pharmaceuticals; in chemical synthesis; for hardening casein, glue, and other proteins. CONTAINERS: 50-lb. multiwall bags; 150- and 200-lb. drums.

TECHNICAL GRADE: Granular and powder forms. Contains 0.3% max. ash and 0.3% max. moisture.

TECHNICAL GRADE FF: Granular FF contains 0.3%-0.7% anticaking agent; 0.7% max. ash and 0.3% max. moisture. Powder FF contains 2.25%-3.75% anticaking agent; 3.5% max. ash and 0.3% max. moisture.

Hydrochloric Acid—Reagent—36.5 to 38% HCl in Water Solution: Clear colorless fuming corrosive liquid with pungent odor; soluble in water, alcohol and ether; Sp. Gr. Min. 1.1854, Max. 1.1923; F. P. below -24°F. (-31.1°C.). USE: For reagent or analytical purposes, or where hydrochloric acid of extremely high purity is required; in manufacture of food products. CONTAINERS: 1- and 5-pt. bottles, 6½- and 13-gal. carboys, tank trucks, tank cars.

Hydrochloric Acid—Technical and Food Processing (Muriatic Acid, Chlorohydric Acid, Hydrogen Chloride)—HCl in Water Solution: Clear colorless or yellowish corrosive liquid with pungent odor; miscible with water and alcohol.

GRADE	SP. GR.	%HCl	F. P. BELOW
18° Bé.	1.142	27.92	-40°F.
20° Bé.	1.160	31.45	-40°F.
22° Bé.	1.179	35.21	-40°F.
23° Bé.	1.189	37.14	-40°F.

USE: In metal pickling and descaling; in manufacture of inorganic and organic chlorides, chlorinated synthetic resins and plastics; in the food industry for the hydrolysis of protein and starch, inversion of sugar and manufacture of edible gelatin; in carbonizing wool and as a bleaching and dyeing assistant in the textile industry; as a prefluxing agent for galvanizing and soldering; in the paper industry for cleaning and scouring wires, screens and felts; for recovery of glycerin in the manufacture of soap; in the purification of sand and clay; in deliming, tanning and dyeing of leathers; for etching aluminum. CONTAINERS: 125- to 130-lb. carboys, tank cars, and tank trucks.

Hydrochloric Acid, Inhibited: (See "Duclean" No. 2 Inhibited Hydrochloric Acid, Page 51.)

***Hydrofluoric Acid—Technical—HF in Water Solution:** Clear colorless fuming liquid; attacks iron, glass and ceramic ware.

STRENGTH	SP. GR.	F. P. BELOW
70%	1.258	-94.3°F.

USE: As a pickling agent for stainless steels and for the removal of silica and siliceous scales from cast iron and steel products; in manufacture of alkylation catalysts, refrigerants, fluorides and acid fluorides; for etching and frosting glass. CONTAINERS: 20-, 30-, and 55-gal. drums, tank cars.

Hydroxyacetic Acid (Glycolic Acid)—Technical Grade 70%—HOCH₂COOH: Light straw colored liquid containing approximately 70% hydroxyacetic acid with traces of other organic acids; F. P. 10°C. USE: In dyeing and tanning of leather; dyeing of textiles; manufacture of cleaning compounds; adhesives; adhesives emulsifier; neutralizing agent—pH control; and sequestering agent; bright-dipping of copper, electro-polishing of stainless steel, and electroplating. CONTAINERS: 55-gal. lined steel drums, 6,000- and 10,000-gal. tank cars.

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"Hytrol" O Cyclohexanone— $C_6H_{10}O$: Colorless liquid; B. P. 156.7°C.; F. P. -47°C. USE: As a solvent in the textile, paint and varnish industries, especially for vinyls; as a chemical intermediate; lube oil additive. CONTAINERS: 55-gal. drums, 8,000- and 10,000-gal. tank cars.

***Iron Sulfate:** (See Ferrous Sulfate, Page 51.)

Lactic Acid—Technical, Food Processing and Plastics (Alpha-Hydroxypropionic Acid)— $CH_3CHOHCOOH$ in Water Solution: Various strengths; clear, colorless to dark brown, syrupy liquid; miscible with water and alcohol. USE: In manufacture of phenolic plastics, lactates, and emulsifiers; anti-perspirants; as a delimer, plumping agent and acidulant in vegetable tanning of leather, and in manufacture of synthetic tanning compounds; as a mordant and assistant in textile dyeing and finishing; in brewing; as an acidulating agent in manufacture of processed cheeses, pickles, olives, pectin, carbonated beverages, jams, jellies, infant foods. CONTAINERS: 120-lb. carboys, 440- to 465-lb. bbl., 490-500 lb. Liquipack drums, tank cars, and tank trucks.

Lactic Acid—U. S. P. (Alpha-Hydroxypropionic Acid—85%) $CH_3CHOHCOOH$ in Water Solution: Clear, colorless, syrupy liquid; optically inactive; soluble in water, alcohol and ether; insoluble in benzol and carbon disulfide; F. P. approximately -40°F. (-40°C.). USE: In manufacture of pharmaceuticals and chemicals. CONTAINERS: 120-lb. carboys.

Lauryl Alcohol: (See "Lorol" 5 and 7 Fatty Alcohol Technical, below.)

"Lignasan" X Fungicide: A blue powder containing ethyl mercury phosphate. USE: In the pulp and paper industry for slime control and pulp preservation; as a preservative for paper sizes. CONTAINERS: 125-lb. drums.

"Lorol" Fatty Alcohols: A group of straight chain (normal) even-numbered-carbon alcohols ranging from C-8 (octyl) to C-18 (stearyl).

"Lorol" 5 Fatty Alcohol Technical: Colorless viscous liquid; Sp. Gr. (25°/25°C.) 0.832-0.836; mixture of straight chain (normal) even-numbered-carbon alcohols (C-10 to C-18) with lauryl alcohol predominating. USE: Intermediate in manufacture of detergents, lubricating oil additives, quaternary ammonium compounds, mercaptans and textile finishing agents. CONTAINERS: 55-gal. drums, 8,000-gal. tank cars.

"Lorol" 7 Fatty Alcohol Technical: Colorless liquid; Sp. Gr. (25°/25°C.) 0.832-0.836. Similar to "Lorol" 5 except that it contains a higher percentage of stearyl alcohol. USE: Intermediate in manufacture of lubricating oil additives. CONTAINERS: 55-gal. drums, 8,000-gal. tank cars.

"Lorol" 9 Fatty Alcohol Technical: Colorless liquid containing about 70% lauryl alcohol. Sp. Gr. (25°/25°C.) 0.832-0.835. USE: Manufacture of lauryl chloride and its derivatives. CONTAINERS: 55-gal. drums, 8,000-gal. tank cars.

"Lorol" 11 Fatty Alcohol Technical: Colorless liquid containing about 80% lauryl and 20% myristyl alcohol. Sp. Gr. (25°/25°C.) 0.832-0.836. USE: Manufacture of lauryl chloride and its derivatives. CONTAINERS: 55-gal. drums, 8,000-gal. tank cars.

"Lorol" 20 Fatty Alcohol Technical— $CH_3(CH_2)_8CH_2OH$: Colorless liquid. B. P. (pure) 195°C. Sp. Gr. (25°/25°C.) 0.823-0.826. Essentially normal octyl alcohol. USE: Antifoam agent, intermediate in manufacture of plasticizers, lubricating oil additives and perfumes. CONTAINERS: 55-gal. drums, 8,000-gal. tank cars.

"Lorol" 22 Fatty Alcohol Technical— $CH_3(CH_2)_{10}CH_2OH$: Colorless liquid. B. P. (pure) 231°C. Sp. Gr. (25°/25°C.) 0.828-0.832. Essentially normal decyl alcohol. USE: Antifoam agent, intermediate in manufacture of quaternary ammonium compounds, lubricating oil additives, perfumes and plasticizers. CONTAINERS: 55-gal. drums, 8,000-gal. tank cars.

"Lorol" 24 Cetyl Alcohol—National Formulary Grade— $CH_3(CH_2)_{12}CH_2OH$: White flakes; M. P. (pure) 49.6°C. Cetyl alcohol meeting the requirements of the National Formulary VIII. USE: Emulsifying and softening agent in cosmetics, salves and ointments. CONTAINERS: 140-lb. fiber containers.

"Lorol" 28 Industrial Fatty Alcohol— $CH_3(CH_2)_{16}CH_2OH$: White flakes; M. P. (pure) 58.0°C. Technical grade stearyl alcohol. USE: Mold lubricant, intermediate in manufacture of lubricating oil additives, quaternary ammonium compounds and textile finishing agents. CONTAINERS: 50-lb. paper bags.

"Lorol" 28 Stearyl Alcohol—U. S. P. Grade— $CH_3(CH_2)_{16}CH_2OH$: White flakes. M. P. (pure) 58.0°C. Stearyl alcohol meeting requirements of U. S. P. USE: Ingredient in lipsticks, cosmetic creams, lotions, ointments and salves. CONTAINERS: 50-lb. fiber containers.

"Ludox" AS Colloidal Silica—Technical: An aqueous colloidal sol containing approximately 30% SiO_2 and 0.25% NH_3 ; pH at 25°C. 9.5 to 9.6; F. P. 32°F. (0°C.). USE: See "Ludox" HS and LS colloidal silicas, below. Suitable for applications requiring a volatile stabilizer and which would be detrimentally affected by sodium ions present in other grades of "Ludox" colloidal silica. CONTAINERS: 55-gal. drums.

"Ludox" HS Colloidal Silica—Technical: An aqueous colloidal sol containing approximately 30% SiO_2 . Ratio, wt. $Na_2O:SiO_2$, 1:95; pH at 25°C. 9.65 to 10.15; F. P. 32°F. (0°C.). USE: For antislip treatment of rayon, cotton, and wool staple for improved yarn strength; compounding and post-dip treatment of latex foams and films to improve modulus and effect rubber savings; modifying latex adhesives for improved bond strengths; for increased hardness and slip resistance in emulsion floor waxes; improved water and heat resistance of adhesive coatings and fibrous struc-

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tures; for antisoil treatment of pile fabrics and miscellaneous substrates; frictionizing agent for paper; binder for inorganic materials; precoating photo sensitized paper for color contrast. CONTAINERS: 55-gal. drums, tank trucks, and tank cars.

"Ludox" LS Colloidal Silica—Technical: An aqueous colloidal sol containing approximately 30% SiO_2 . Ratio, wt., $\text{Na}_2\text{O}:\text{SiO}_2$, 1:285; pH at 25°C. 8.2 to 8.7; F. P. 32°F. (0°C.). USE: See "Ludox" HS Colloidal Silica, above. CONTAINERS: 55-gal. drums, tank trucks, and tank cars.

"Ludox" SM Colloidal Silica—Technical: An aqueous colloidal sol containing approximately 15% SiO_2 characterized by extremely small particle size averaging only 7 millimicrons. Ratio, wt., $\text{Na}_2\text{O}:\text{SiO}_2$, 1:159; pH at 25°C. 8.1; F. P. 32°F. (0°C.). USE: Binder for inorganic fibrous materials; antisoil applications to smooth surfaces; paper coatings to improve abrasion resistance, printability and other properties; latex adhesive compositions for improved adhesion, etc. CONTAINERS: 55-gal. drums.

Methanol— CH_3OH : Colorless flammable liquid; B. P. 64.7°C.; F. P. -97°C.; Sp. Gr. (20°/4°C.) 0.7913. USE: Ingredient of automotive and other anti-freezes; in manufacture of formaldehyde; in manufacture of many methyl esters (e.g., dimethyl phthalate, methyl chloride); injection fluid for increasing power and octane rating of aviation gasoline; as a constituent of many solvents for varied purposes. CONTAINERS: 55-gal. drums; 6,000-, 8,000- and 10,000-gal. tank cars, and tank trucks.

Methanol Formaldehyde 33-55: Clear, colorless reaction product containing approx. 33% by weight methanol, 55% formaldehyde, and 12% water. Weight per gal. 8.9; viscosity 2.8 cp. at 25°C. USE: In formaldehyde reactions where low water is preferred and the reaction medium is methanol; in manufacture of methylated urea and methylated melamine resins for use in paper and textile treatment, coatings, and laminating adhesives. CONTAINERS: 55-gal. drums; 4,000-gal. tank trucks (within 200-mile radius of Perth Amboy, New Jersey); 8,000-gal. tank cars.

Methanol Formaldehyde 43.5-46.5: Clear, colorless reaction product containing 43.5% by weight methanol, 46.5% formaldehyde and 10% water. Weight per gal. 8.9; viscosity 2.1 cp. at 25°C. USE: In formaldehyde reactions where low water is preferred and the reaction medium is methanol; in manufacture of methylated urea and methylated melamine resins for use in paper and textile treatment, coatings, and laminating adhesives. CONTAINERS: 55-gal. drums; 4,000-gal. tank trucks (within 200-mile radius of Perth Amboy, New Jersey); 8,000-gal. tank cars.

Methyl Formate—Technical (97%)— HCOOCH_3 : Colorless, mobile, volatile liquid; B. P. 31.8°C. USE: As an ingredient in fumigants; as a solvent; in manufacture of formates, sulfa drugs and organic chemicals. CONTAINERS: 55-gal. drums; 8,000- and 10,000-gal. tank cars.

Mineral Adhesive Solution—Technical: A mineral base adhesive modified to obtain rapid wetting and good adhesion. USE: For bonding metal foil to paper; for bonding insulating materials to metal. CONTAINERS: 55-gal. drums, tank cars.

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Mold and Rope Inhibitors: (See "Mycoban" Calcium Propionate and "Mycoban" Sodium Propionate, below.)

Monomethylamine—Anhydrous and Aqueous Solutions— CH_3NH_2 : Anhydrous—colorless gas, clear and water white when liquefied. USE: In the manufacture of pharmaceutical intermediates for the xanthine alkaloids, theophylline, caffeine, the sympathomimetic drugs such as ephedrine, and the analgesic meperidine; in manufacture of surface active agents; photographic developers; dyes; in manufacture of soil fumigants and fungicides for agriculture. CONTAINERS: Anhydrous—100-lb. cylinders, tank trucks, tank cars. Aqueous solutions—55-gal. drums, tank trucks, tank cars.

Muriatic Acid: (See Hydrochloric Acid—Technical, Page 52.)

Muriatic Acid, Inhibited: (See "Duclean" No. 2 Hydrochloric Acid Solution Inhibited—Technical, Page 51.)

"Mycoban" Calcium Propionate— $\text{Ca}(\text{CH}_3\text{CH}_2\text{COO})_2$: White powder. USE: Inhibitor of mold and certain other microorganisms in baked goods, pasteurized process and blended cheeses and cheese foods packaged as slices and cuts for consumer distribution, and tobaccos. CONTAINERS: 250-lb. drums.

"Mycoban" Sodium Propionate— $\text{CH}_3\text{CH}_2\text{COONa}$: White powder. USE: Inhibitor of mold and certain other microorganisms in baked goods, pasteurized process and blended cheeses and cheese foods packaged as slices and cuts for consumer distribution, and tobaccos. CONTAINERS: 60-lb. cartons (six 10-lb. packages), 250-lb. fiber drums.

Niter Cake: (See Sodium Bisulfate, Page 56.)

Nitric Acid—Reagent—69-71% HNO_3 in Water Solution: Clear, colorless, highly corrosive liquid; soluble in water and ether; decomposes alcohol; Sp. Gr. 1.416-1.426; F. P. below -40°F. (-40°C.). USE: As a reagent in chemical analysis and for other uses for which HNO_3 of extremely high purity is required; as an etchant in metallography. CONTAINERS: 1- and 5-pt. bottles, 6½- and 13-gal. carboys, tank trucks.

Nitric Acid—Technical and Engraver's Quality (Aqua Fortis, Hydrogen Nitrate, Azotic Acid)— HNO_3 in Water Solution: Clear, colorless to light brown, fuming, corrosive liquid; miscible with water.

GRADE	SP. GR.	% HNO_3	F. P. BELOW
36° Bé.	1.330	52.3	- 2°F.
38° Bé.	1.335	56.5	- 4°F.
40° Bé.	1.381	61.4	- 9°F.
42° Bé.	1.408	67.2	-30°F.
95%	1.493	95.0	-40°F.

USE: As an ingredient in nitrating acid; in manufacture of explosives, celluloid, nitrocellulose, lacquers, dopes, cements, dry colors, inorganic nitrates, insecticides, fertilizers, pharmaceuticals and vitamin products; as a nitrating agent in manufacture of dyes, intermediates, aniline,

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nitrobenzene, quinoidine, etc.; for pickling and bright dipping stainless steel, copper alloys, aluminum and non-ferrous metals; as a pickling agent for steel products; for passivating stainless steel and other nickel-chrome alloys; for purifying petroleum sludge acid; as an etching agent for zinc photoengravers' plates; for general oxidizing purposes. CONTAINERS: Technical—144- to 152-lb. carboys, 163- to 600-lb. drums.

"Nogas" Metal Pickling Agent: Amorphous, brown powder; soluble in water and acids. Will give foam-producing solutions when dissolved in water or acids. USE: As an addition agent in acid pickling of iron and steel to produce a foam blanket and to improve the atmosphere by elimination of acid mist particles given off by the pickling operation. CONTAINERS: 65-lb. fiber drums, 300-lb. bbl.

Octanol: (See "Lorol" 20 n-Octyl alcohol, Page 53.)

Oleum (Fuming Sulfuric Acid)— H_2SO_4 and SO_3 : Nearly colorless, fuming, corrosive liquid; soluble in water with violent evolution of heat; furnished in various strengths. USE: As an ingredient in mixed acids for nitration purposes, such as in manufacture of explosives, dyes, intermediates and nitrocellulose products; in sulfonation of vegetable, marine and petroleum oils; in refining petroleum; for fortification of dilute sulfuric acid; for general organic sulfonation. CONTAINERS: 775- to 825-lb. drums, tank cars, and tank trucks.

Paraformaldehyde (Paraform, Trioxymethylene)— $(CH_2O)_x \cdot H_2O$: A white powder or granular solid; slowly soluble in water and alcohol; evolves formaldehyde gas when heated; CH_2O content min. 95%. USE: In manufacture of synthetic resins, pharmaceuticals and cork products; for hardening casein and glue; as a germicide, fungicide, deodorant; for fumigation. CONTAINERS: 50-lb. multiwall bags; 100-, 125-, 250-, and 300-lb. drums.

***Phenothiazine: Drench Compound and N. F. Powder.** USE: As an antioxidant for synthetic lubricating oils and as a polymerization inhibitor. CONTAINERS: 150-lb. fiber drums.

***Phosphoric Acid—Technical and Food Processing—75% and 80% H_3PO_4 in Water Solution:** Colorless, syrupy liquid; miscible with water in all proportions; F. P. 75% below $-10^\circ F.$ ($-23.3^\circ C.$). USE: As a pickling and rust-proofing agent, ceramic vitrifying agent and flux; in manufacture of phosphate salts; in plastics manufacture. CONTAINERS: 160- to 180-lb. carboys, 700- to 750-lb. drums, tank cars, and tank trucks.

***Phosphoric Acid 85%—N. F.— H_3PO_4 :** Colorless, syrupy liquid; miscible with water; Sp. Gr. 1.69; F. P. approximately $20^\circ C.$ USE: In manufacture of dental cements, pharmaceuticals and food products; as an acidulating agent in jellies, soft drinks, etc. CONTAINERS: 170- to 180-lb. carboys; 750- to 775-lb. drums, tank cars, and tank trucks.

Potassium Silicate—Glass Technical: Weight ratio $SiO_2:K_2O=2.1$; Colorless, anhydrous lump or white powder; soluble in water at elevated temperature and pressure. USE: In manufacture of glass, ceramic, refractory materials and welding rods; in manufacture of potassium silicate solutions. CONTAINERS: 200-lb. burlap bags, 500-lb. drums.

Potassium Silicate—Solution—Electronics 200—Technical: Filtered, water white solutions having a $SiO_2:K_2O$ weight ratio of 2.07; especially low in heavy metals content. USE: In coating cathode ray tubes with phosphors, in other uses for potassium silicate where a product of superior clarity and purity is required. CONTAINERS: 55-gal. polyethylene lined drums, tank cars, tank trucks.

Potassium Silicate—Solution—Technical: Various ratios of $SiO_2:K_2O$ in water solution; colorless mobile liquid at gravities of $30^\circ-40^\circ$ Bé. USE: As a non-efflorescing base for inorganic paints and protective coatings; as a coating for roofing granules and welding rods; as a binder in manufacture of carbon electrodes; as an ingredient in flame retardant paints and compositions. CONTAINERS: 55-gal. drums, tank cars, tank trucks.

"Quilon" Chrome Complex: A Werner type chromium complex in isopropanol. USE: As a water repellent and sizing treatment of paper and other cellulosic materials; for treatment of felt hats, leather, wool fabrics, hydrophobic fibers, and siliceous and other negatively charged surfaces; as an anti-blocking or release agent; for insolubilizing various water soluble or swellable coatings. CONTAINERS: $6\frac{1}{2}$ -gal. carboys, 55-gal. drums.

Sal Ammoniac: (See Ammonium Chloride, Page 49.)

Salt Cake—Industrial Grade (Sodium Sulfate); Sodium Sulfate SR— Na_2SO_4 : White granular or powdered, crystalline material; soluble in water; containing a minimum of 95% Na_2SO_4 . USE: In manufacture of sulfate and kraft paper, glass, sodium sulfide and other mineral salts, blanc fixe, ceramic glazes; as an ingredient in mineral animal foods. CONTAINERS: 100-lb. bags, bulk.

***Soda Ash:** (See Sodium Carbonate, Page 56.)

***Sodium Acid Fluoride—Technical (Sodium Bifluoride)— $NaHF_2$:** White crystalline powder; soluble in water. USE: As a laundry sour; in etching glass; an ingredient in electroplating solutions. CONTAINERS: 150- and 375-lb. drums.

***Sodium Bicarbonate—Technical and U. S. P. (Sodium Acid Carbonate, Baking Soda)— $NaHCO_3$:** White crystalline or granular material; soluble in water; insoluble in alcohol; loses CO_2 at $270^\circ C.$ USE: In manufacture of baking powder, pharmaceuticals, effervescent salts and food products; as a neutralizing agent in leather tanning, textile, food and paper industries; as an ingredient in fire extinguishing compounds. CONTAINERS: 100-lb. bags.

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***Sodium Bichromate—Technical (Sodium Dichromate)— $\text{Na}_2\text{Cr}_2\text{O}_7 \cdot 2\text{H}_2\text{O}$:** Reddish, deliquescent crystals or fine, granular material; soluble in water; insoluble in alcohol; decomposes at 400°C . **USE:** In chrome tanning of leather and as an insolubilizing agent for glue, gums and gelatin; in manufacture of chrome pigments, for pickling copper alloys; as a corrosion inhibitor in aqueous systems. **CONTAINERS:** 100-lb. bags, 100- and 400-lb. drums.

***Sodium Bifluoride:** (See Sodium Acid Fluoride, Page 55.)

Sodium Bisulfate—Globular Technical "G. B. S." (Sodium Acid Sulfate, Niter Cake, Bisulfate of Soda)— NaHSO_4 : White, opaque or translucent, globular shaped pellets; soluble in water; aqueous solution strongly acid in reaction. **USE:** As an ingredient of cleaning compositions, metal pickling compounds, metallurgical fluxes. **CONTAINERS:** 100-lb. bags, 100- and 400-lb. fiber drums, bulk.

Sodium Bisulfite—Solution—Technical and Food Processing (Sodium Acid Sulfite)— NaHSO_3 in Water Solution: Clear, colorless liquid with sulfurous odor; contains at least 37% NaHSO_3 . **USE:** In the manufacture of dyes, intermediates, and other organic chemicals. **CONTAINERS:** 505-lb. bbl.

***Sodium Carbonate—Anhydrous Technical (Soda Ash, Calcined Soda)— Na_2CO_3 (58% Na_2O):** White, amorphous powder, dense or light; soluble in water; M. P. 851°C . **USE:** In manufacture of sodium compounds and other chemicals, glass, soaps, ceramics, detergents, paper; as a water softener for treatment of municipal and industrial supplies; as a detergent in laundries; as an ingredient in metal cleaning compositions. **CONTAINERS:** 100-lb. bags, bulk.

Sodium Dimethyl Dithiocarbamate—40% Solution—Technical— $(\text{CH}_3)_2\text{N}-\text{CSSNa}$: Amber colored, clear water solution; Sp. Gr. 1.2. **USE:** As an accelerator short stop in the rubber industry. **CONTAINERS:** Tank cars, tank trucks and 540-lb. drums.

***Sodium Fluosilicate:** (See Sodium Silicofluoride, Page 57.)

***Sodium Hydroxide—Technical (Caustic Soda, Sodium Hydrate, Lye)— NaOH :** White, deliquescent, amorphous solid, flakes or crystalline material; soluble in water, alcohol and glycerin; M. P. 318°C . Also as a colorless water solution. **USE:** In manufacture of soap, sodium salts, rayon, chemical wood pulp, intermediates, indigo, aniline dyes, phenols, paper, mercerized cotton, paints, pigments and varnishes; for refining petroleum and vegetable oils; in reclaiming rubber, softening water; in bleaching, dyeing and printing of textile fabrics; as a detergent for cleaning textiles, metals, etc.; as a plating and storage battery electrolyte. **CONTAINERS:** Liquid—tank cars, tank trucks. Other grades—in drums.

Sodium Hyposulfite: (See Sodium Thiosulfate, Page 57.)

Sodium Metasilicate—Technical— $\text{Na}_2\text{SiO}_3 \cdot 5\text{H}_2\text{O}$: White, granular, translucent solid; soluble in water; insoluble in alcohol; aqueous solution strongly alkaline in reaction. **USE:** As a soap builder and ingredient in detergents and cleaning compounds for cleaning fabrics, glass, ceramics, metal products, etc.; as a detergent in kier boiling of cotton goods; as a water softener. **CONTAINERS:** 100-lb. bags.

***Sodium Nitrate—Technical (Chile Saltpeter, Soda Niter)— NaNO_3 :** Colorless or white, hygroscopic, crystalline material; soluble in water; slightly soluble in alcohol and glycerin; M. P. approximately 308°C ; decomposes with further heating. **USE:** In manufacture of potassium nitrate, red lead, dyes and intermediates, explosives and pyrotechnics; as a constituent of metal fluxes and heat treating salts; as an ingredient in enamels and glass; for fixing the color of cured meat and poultry products; as a general oxidizing agent. **CONTAINERS:** 100-lb. bags.

***Sodium Phosphate—Di—Anhydrous—Food Grade— Na_2HPO_4 :** White granular or powder; soluble in water; insoluble in alcohol. **USE:** Boiler water treatment; in making glazes for potteries, porcelains and chinaware; as an emulsifier in making process cheese; in manufacture of pigments such as cobalt phosphate. **CONTAINERS:** 100-lb. paper bags, 125- and 350-lb. fiber drums.

***Sodium Phosphate—Tri—Technical and Food Grade (Trisodium Phosphate)— $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ (Dodecahydrate)—Anhydrous Grade also available:** Colorless crystals; soluble in water; M. P. approximately 73°C ; aqueous solution alkaline in reaction. **USE:** As a water softener; in manufacture of phosphates, soaps, detergents, paint cleaners, boiler compounds, scouring powders, household cleaners; as an alkali builder for laundries; for cleaning textiles, glass, metals, dairy and food processing equipment; for neutralizing acid residues on pickled steel. **CONTAINERS:** 100-lb. bags, 100- and 325-lb. fiber drums.

Sodium Propionate: (See "Mycoban" Sodium Propionate, Page 54.)

***Sodium Pyrophosphate—Technical (Tetrasodium Pyrophosphate)— $\text{Na}_4\text{P}_2\text{O}_7$:** White, granular, powdered or amorphous material; soluble in water; insoluble in alcohol; aqueous solution possesses an alkaline reaction, water softening and dispersing action on hard water soaps, clays, and other inerts. **USE:** In manufacture of iron and other pyrophosphates; as a water softener, soap builder and as an ingredient in detergents for cleaning fabrics, glass, metals, etc.; in electroplating solutions; in thinning clay slips for paper coating; in wool scouring; as a general dispersing agent. **CONTAINERS:** 100-lb. bags, 100- to 325-lb. fiber drums.

Sodium Silicate—Glass—Technical—Ratio % SiO_2 % Na_2O —1.95 and 3.25: Clear, colorless to slightly greenish, glassy lumps or white powder; soluble in water at elevated temperatures and pressures. **USE:** In manufacture of sodium silicate solutions; in enamel frits; in coated welding rods and cement. **CONTAINERS:** 100-lb. burlap bags, 425- and 500-lb. drums, bulk. Dissolvers available on rental basis for preparing large volumes of solution.

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Sodium Silicate Solution—Technical (Liquid Silicate of Soda, Water Glass): Clear or slightly cloudy liquids of various $\text{SiO}_2\cdot\text{Na}_2\text{O}$ ratios; gravity from 34°–60° Bé. USE: As a corrugated boxboard adhesive; in the manufacture of silica gel; in the manufacture of hot-top collars for pouring molten metal; as a welding rod coating; in manufacture of soap; as a stabilizer in peroxide bleaching of cotton and rayon; for silk weighting; in foundry core binders; in roofing granules. CONTAINERS: 55-gal. drums, tank cars, and tank trucks.

***Sodium Silicofluoride—Technical (Sodium Fluosilicate)— Na_2SiF_6 :** White, granular powder; moderately soluble in water; insoluble in alcohol; aqueous solutions possess an acid reaction. USE: As an opacifier in manufacture of glass and enamels; as a flux in vitreous enamels and in remelting secondary aluminum; in electrodeposition of tin and lead. CONTAINERS: 100-lb. bags, 125- and 400-lb. drums.

***Sodium Sulfate—Anhydrous—Technical (Super Sulfate of Soda)— Na_2SO_4 :** White crystals; soluble in water; M. P. 884°C. USE: In the manufacture of glass; for standardizing dyes and dyeing textiles; as a builder and filling agent in detergent products; in manufacture of chrome pigments. CONTAINERS: 100-lb. bags, bulk.

Sodium Sulfate—Industrial: (See Salt Cake, Page 55.)

***Sodium Sulfide—Technical—60% Na_2S :** Deliquescent, yellow to brown solid or thick flakes. Aqueous solution strongly alkaline in reaction. USE: As a depilatory in tanning; in textile dyeing and printing; the beneficiation of ores and precipitation of heavy metals. CONTAINERS: 350- to 710-lb. drums.

***Sodium Sulfite—Anhydrous Technical— Na_2SO_3 :** Tan or slightly pink, crystalline powder; soluble in water; slightly soluble in alcohol; aqueous solution possesses a reducing action. USE: As a bleach and general reducing agent in manufacture of dyes and intermediates; deoxygenating boiler feed water; as an antiseptic and preservative. CONTAINERS: 100-lb. paper bags.

Sodium Thiosulfate—Technical, Food Processing and Photo Quality (Sodium Hyposulfite, Hypo, Antichlor)— $\text{Na}_2\text{S}_2\text{O}_3\cdot 5\text{H}_2\text{O}$: Colorless to white, translucent, efflorescent crystals; soluble in water; insoluble in alcohol; M. P. approximately 48°C.; decomposes with further heating. USE: As a reducing agent in chrome tanning of leather; to dissolve silver salts ("fixing") in photography; as an antichlor in bleaching of paper, pulp, textiles, etc.; in manufacture of dyes. CONTAINERS: 100-lb. bags.

Sodium Thiosulfate—Anhydrous Technical, Food Processing and Photo Quality (Sodium Hyposulfite, Hypo, Antichlor)— $\text{Na}_2\text{S}_2\text{O}_3$: White granular crystals; soluble in water; insoluble in alcohol. USE: As a reducing agent in chrome tanning of leather; to dissolve silver salts ("fixing") in photography; as an antichlor in bleaching of paper, pulp, textiles, etc. CONTAINERS: 64- and 100-lb. bags.

***Sodium Tripolyphosphate—Technical— $\text{Na}_5\text{P}_3\text{O}_{10}$:** White, powdered or granular, free-flowing material; soluble in water. USE: Household and industrial cleaning compound formulations; textile processing; dairy detergents; deflocculation of clays and other solids in suspension. CONTAINERS: 100-lb. bags, 100- and 325-lb. fiber drums.

Stearyl Alcohol: (See "Lorol" 28 Stearyl Alcohol, Page 53.)

Strontium Nitrate—Technical— $\text{Sr}(\text{NO}_3)_2$: White crystalline powder; soluble in water; slightly soluble in alcohol; Sp. Gr. 2.98; purity approximately 97%; flame tests carmine-red. USE: In manufacture of railroad and highway flares, marine signals, fireworks, pyrotechnics, and color pigments. CONTAINERS: 100-lb. bags, 600-lb. bbl.

Sulfamic Acid—Technical—Crystal and Granular Grades, HSO_3NH_2 : White crystalline or granular solid, soluble in water; aqueous solutions approach the common mineral acids in acidity; all common salts highly water soluble. USE: For removing scales and deposits from boilers, heat exchangers, condensers, evaporators, jacketed vessels, etc.; Felt shower water pH adjustment to retard felt fillup; chlorine stabilization and pH reduction agent for swimming pools; oil well descaling agent; as an ingredient in household cleaning formulations; in nitrite removal in azo dye manufacture and piece dyeing of textiles and leather; in sulfation of alcohols; as a catalyst for urea-formaldehyde resins; as the electrolyte in plating baths. CONTAINERS: 400-, 425-lb. fiber drums.

***Sulfur—Technical and N. F. (Commercial Flour Technical, Light and Heavy Refined N. F., Flowers of Sulfur Sublimed, Roll Sulfur Technical, Commercial Rubbermakers' Technical)—S:** All grades. Pale yellow, solid, amorphous, crystalline sticks or powder of varying degrees of fineness; insoluble in water; soluble in sodium sulfide, carbon disulfide and sulfur chloride. USE: In manufacture of rubber, paper, sulfuric acid, cements, explosives, pharmaceuticals, glass, paints, matches, leather, pyrotechnics, steel, soaps and for many other materials. CONTAINERS: 50- to 200-lb. bags, 165- to 500-lb. bbl.

Sulfur Trioxide—Stabilized Liquid SO_3 , Gamma Form: Colorless, fuming, corrosive liquid, reacts explosively with water. USES: As a sulfating and sulfonating agent for detergent, lubricating oil additives and synthetic organic chemicals manufacture. CONTAINERS: 750-lb. drums, tank cars and tank trucks.

Sulfuric Acid—Reagent—95 to 98% H_2SO_4 in Water Solution: Clear, colorless, heavy, oily liquid; dissolves in water with evolution of heat; Sp. Gr. 1.84; F. P. —15°C. USE: As a reagent in chemical analysis or where sulfuric acid of an especially high purity is required. CONTAINERS: 1- and 5-pt. bottles, 6½- and 13-gal. carboys, tank trucks.

Sulfuric Acid, Fuming: (See Oleum, Page 55.)

Sulfuric Acid, Inhibited: (See "Duclean" No. 1 Inhibited Sulfuric Acid, Page 51.)

Sulfuric Acid—Technical (Oil of Vitriol)— H_2SO_4 : Clear, colorless, heavy, oily, corrosive liquid; soluble in water in all proportions with evolution of heat. All commercial strengths. USE: In manufacture of superphosphate fertilizers, ammonium sulfate from by-product coke ovens, mineral colors, explosives, inorganic acids, phosphates, alum, intermediates, dyes and other organic chemicals; in refining of petroleum and manufacturing of sulfonated oils; for pickling iron and steel and bright

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dipping nonferrous metals; in pickling of hides and chrome tanning of leather; in sizing and parchmentizing paper; in manufacture of synthetic rubber latex, rayon, synthetic detergents, sugar and starch; as a general dehydrating agent; assistant in dyeing, bleaching, carbonizing, mercerizing textiles; production of bleaching clays; animal and vegetable oil refining; catalyst in alkylation process for manufacture of high octane gasoline. CONTAINERS: 180- to 200-lb. carboys, 700- and 750-lb. steel drums, tank cars, and tank trucks.

Tanning Agent: (See "G-942" Tanning Agent, Page 52.)

***Tetrasodium Pyrophosphate:** (See Sodium Pyrophosphate, Page 56.)

Thiodipropionate Antioxidant: White, low melting solid consisting of mixed esters of thiodipropionic acid; 70% lauryl ester, 20% myristyl ester, and 10% of cetyl ester. Melting point 30–33°C., specific gravity of solid is 0.975 at 25°C.; specific gravity of liquid is 0.919 at 40°C. USE: Antioxidant for olefin polymers. Chemical preservative in edible fats and oils. CONTAINERS: 30 gal. drums with 220 lbs. net product.

Trimethylamine—Anhydrous and Aqueous Solutions—Technical— $N(CH_3)_3$: Anhydrous—colorless gas, clear and water white when liquefied. USE: Intermediate for choline salts (animal feed supplement) and quaternary ammonium salts; in organic synthesis; in manufacture of ion exchange resins and pharmaceutical intermediates. CONTAINERS: Anhydrous—100-lb. cylinders, tank trucks, tank cars. Aqueous solutions—55-gal. drums, tank cars, and tank trucks.

Urea, Crystal NF (Carbamide)— $(NH_2)_2CO$: White crystals, M. P. 132.7°C.; Sp. Gr. (solid) 1.335. USE: Manufacture of urea-formaldehyde resins for adhesives, protective finishes, molding powders, and treatment of paper and textiles; for treating wood and textiles; solubilizing agent for starches and proteins in adhesives and paper coatings; softening agent for paper and cellulose; intermediate in the manufacture of chemicals, dyes and pharmaceuticals; ingredient in fire-retardant paints; ammoniated dentifrices; in the preparation of skin creams, lotions and deodorants; stabilizer in explosives; blowing agent for porous articles (foamed latex, sponges); dewaxing of oils; medicinal purposes and (non-corrosive) de-icing of airport ramps and walkways. CONTAINERS: 100-lb. paper bags.

Urea, Shotted (Carbamide)— $(NH_2)_2CO$: Small round white pellets which remain relatively free flowing and noncaking. USE: Same as Crystal Urea, except where NF grade is required. CONTAINERS: 100-lb. paper bags.

Urea Formaldehyde 25-60: Clear, colorless, stable urea formaldehyde reaction product with F/U molecular ratio of approx. 4.8 to 1. Contains (by weight) 60% formaldehyde, 25% urea, and 15% water. Weight per gal. 11.1 lb.; viscosity 260 cp. at 25°C.; B.P. approx. 100°C.; F.P. —20°

to —30°C. USE: As a starting material for the preparation of urea formaldehyde resins for the plastics, textile, paper, chemical, and wood industries. CONTAINERS: 55-gal. drums; 4,000-gal. tank trucks (within 200-mile radius of Perth Amboy, New Jersey); 8,000-gal. tank cars.

"Volan" Bonding Agent—Methacrylate Chromic Chloride: A Werner type chromium complex in isopropanol. USE: As a bonding agent applied to glass fibers used in reinforced plastic laminates to improve the adhesion between glass and resin, especially under moist conditions; also to improve adhesive bond between other hydrophilic surfaces such as paper and wood and polymeric coatings or impregnants. CONTAINERS: 6½-gal. carboys and 55-gal. drums.

Wood Preservatives: (See CZC Chromated Zinc Chloride, Page 50; Copperized CZC Chromated Zinc Chloride, Page 50; Zinc Chloride, this page.)

"X-12" Flame Retardant: White crystalline material, completely soluble in hot water. Especially formulated to provide temperature stability and improve aging characteristics. Exerts a stabilizing effect upon many dyes, improving light fastness and crocking characteristics. Resistant to removal by drycleaning solvents. USE: One-step, renewable-type flame retardant treatment for use on cellulosic materials, including cotton, viscose rayon, and paper; not suitable for use on acetate rayon, or synthetic fibers, except where blended with substantial percentages of cellulosic varieties. CONTAINERS: 50-lb. fiber drums, 100-lb. paper bags.

Zinc Ammonium Chloride—Technical— $ZnCl_2 \cdot 3NH_4Cl$: Granular or crystal; foaming and nonfoaming; soluble in water. USE: As a fluxing salt for hot dip galvanizing of pipe, tubes, tanks, malleable iron fittings, wire, etc.; as a flux in metal soldering and tinning; in electric batteries; in manufacture of soldering compounds. CONTAINERS: 100-lb. paper bags, 400-lb. drums.

Zinc Ammonium Chloride—High Ratio WA—Technical— $ZnCl_2 \cdot 1.9NH_4Cl$: White crystals; soluble in water. USE: As a preflux especially in continuous galvanizing operations. CONTAINERS: 100-lb. paper bags.

Zinc Chloride—Fused and Granular Technical (Butter of Zinc)— $ZnCl_2$: White translucent, hygroscopic solid or white, granular powder; soluble in water and alcohol; M. P. 262°C.; B. P. 732°C. **Solution:** $ZnCl_2$ of various concentrations in water solution; clear, colorless solutions; miscible with water in all proportions, becoming slightly turbid at high dilutions. USE: As an ingredient in dry cell batteries, oil well completion fluids, tinning, galvanizing and soldering fluxes; for preservation and flameproofing of wood; in manufacture of vulcanized hard fiber, intermediates, dyes, in reclaiming synthetic rubber. CONTAINERS: Granular—50- and 650-lb. drums. Solution—170-lb. carboys, 690-lb. drums, tank cars. Fused—1,100-lb. drums.

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ANTI-FREEZE PRODUCTS

Commercial Methanol Anti-Freeze (C.M.A.): A methanol base product with chemical rust and corrosion inhibitor. Has good heat transfer properties. Recommended for protection to -30°F. in vehicles with standard (160°F.) opening thermostats. CONTAINERS: 55-gal. drums.

"Telar" Anti-Freeze and Summer Coolant: A concentrated ethylene glycol base product with special rust inhibitors that protect all cooling system metals, including aluminum, against rust and corrosion in winter and summer. It can be mixed with any potable water and never needs to be drained from a properly operating cooling system. A built-in signalling system, Color Check, warns of cooling system failure. The color of "Telar", bright red, changes to yellow when serious cooling system failure occurs and the coolant turns corrosive. Recommended for use in all liquid cooled internal combustion engines. CONTAINERS: Qt. and gal. tamperproof cans (24 one-qt. or 6 one-gal. cans in a case).

"Zerex" Anti-Rust Anti-Freeze: A concentrated ethylene glycol-base product made to a special DuPont formula. It contains MR-8, a special chemical rust inhibitor that gives excellent protection to all metals, including aluminum, found in the cooling system. It will prevent rust and corrosion in the cooling system for one season. It is non-evaporating and non-foaming. Recommended for all types of liquid cooled internal combustion engines where one season's use is desired. CONTAINERS: Qt. and gal. tamperproof cans (24 one-qt. or 6 one-gal. cans in a case); 54-gal. drums.

"Zerone" Anti-Rust Anti-Freeze: A methanol-base product designed to give effective and economical anti-freeze protection to liquid cooled automotive cooling systems. It also contains special rust inhibitors. "Zerone" is a very effective anti-freeze that requires about 25% less product to protect to a given temperature than the same quantity of ethyl alcohol or ethylene glycol. Recommended for use with normal-operating thermostats (below 160°F.). CONTAINERS: Qt. and gal. tamperproof cans (24 one-qt. or 6 one-gal. cans in a case); 54-gal. drums.

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BIOCHEMICALS

INSECTICIDES

Dairy Cattle Insecticide: Tan wettable powder residual insecticide containing 50% technical methoxychlor. **USE:** For dust application to control hornflies on dairy cattle and for fly control in dairy barns and premises. **CONTAINERS:** 1-lb. canisters (24 in a case).

"Deenate" 50W DDT Insecticide: A wettable powder containing 50% DDT Technical. **USE:** As a spray for control of insect pests of fruits and vegetables as well as certain livestock and buildings. **CONTAINERS:** 3-lb. bags (16 in case), 4-lb. bags (12 in a case), 50-lb. bags.

EPN 300 Insecticide: A wettable powder containing 25% ethyl p-nitrophenyl thionobenzenephosphonate as the active ingredient. **USE:** As a spray insecticide to control certain mites, scales and other insects such as plum curculio, peach tree borer, orange tortrix, grape berry moth, European corn borer and potato aphid on fruits and vegetables; and as a dust ingredient for boll weevil and certain other cotton insects. Also for use by qualified agencies for control of certain mosquito larvae. **CONTAINERS:** 3-lb. bags (12 in a case).

Lead Arsenate Insecticide—"NuRexform" Standard: A poisonous powder (colored pink to comply with insecticide laws in several states). **USE:** For control of codling moth, cankerworm, curculio and most chewing insects feeding on foliage and fruit; for grubproofing turf. **CONTAINERS:** 1-lb. bags (48 in a case), 3-lb. bags (16 in a case), 4-lb. bags (12 in a case).

"Marlate" 50 Methoxychlor Insecticide: A wettable powder containing 50% technical methoxychlor. **USE:** For control of insect pests of vegetables, fruits, forage crops and stored grain as well as livestock. Very low toxicity to warm-blooded animals. **CONTAINERS:** 4-lb. bags (12 in a case), 50-lb. bags.

"Marlate" 2-MR Methoxychlor Insecticide: Emulsifiable formulation containing 2 pounds technical methoxychlor per gallon. **USE:** For control of certain insect pests of forage crops and certain livestock; in grain storage bins; as a space spray for flies. **CONTAINERS:** 1-gal. cans (6 in a case), 5- and 30-gal. drums.

90% Technical Methoxychlor Oil Concentrate: Off-white solid. **USE:** Sold only to manufacturers or processors for preparation of insecticide formulations. **CONTAINERS:** 100-lb. fiber drums, 50-lb. bags.

"NuRexform" Standard Lead Arsenate: (See Lead Arsenate Insecticide.)

FUNGICIDES

Copper-A Compound (Tetra Copper Calcium Oxide): A complex compound containing not less than 45% copper as metallic; finely divided bluish powder. **USE:** In control of early and late blight on potatoes and tomatoes, leaf spot on sour cherries and control of blights on celery, etc.; in manufacture of agricultural copper dust. **CONTAINERS:** 6-lb. bags (8 in a case), 50-lb. bags.

"Fermate" Ferbam Fungicide: A wettable powder containing ferbam (ferric dimethyldithiocarbamate). **USE:** To control plant diseases such as scab on apples and pears, cedar rust on apples, blue mold in tobacco plant beds, leaf spot and brown rot on cherries, black rot on grapes, black spot and rust on roses. **CONTAINERS:** 3-lb. bags (12 in a case), 50-lb. bags (see also under Garden Products, Page 53.)

"Fermate" D Ferbam Fungicidal Composition: Black, finely divided powder, containing ferbam (ferric dimethyldithiocarbamate). **USE:** Sold to manufacturers or processors for preparation of fungicide dusts. **CONTAINERS:** 50-lb. bags.

"Lignasan" Fungicide: A composition based on ethyl mercury phosphate. **USE:** For prevention of surface molds and blue-stain organisms on freshly sawed lumber. **CONTAINERS:** 2-lb. bags (50 in a drum), 125-lb. drums in bulk.

"Manzate" Maneb Fungicide: A wettable powder containing maneb (manganese ethylenebisdithiocarbamate). **USE:** To control many fungus diseases of vegetables such as tomatoes, potatoes, celery, cucumbers, lima beans, onions, peppers and spinach; fruit and nut crops such as apricots, peaches, grapes, and almonds; field crops such as sugar beets; ornamentals such as roses. **CONTAINERS:** 3-lb. bags (12 in a case), 4½-lb. bags (8 in a case), 50-lb. fiber drums (see also under Garden Products, page 63).

"Melsan" Fungicide: A composition based on ethyl mercury phosphate and sodium pentachlorophenate. **USE:** For prevention of surface molds and blue-stain organisms on freshly sawed lumber. **CONTAINERS:** 150-lb. drums in bulk.

"Parzate" Liquid Nabam Fungicide: A solution containing nabam (disodium ethylenebisdithiocarbamate) to be combined with zinc sulfate in the spray tank. **USE:** For control of early and late blights of tomatoes, potatoes, and celery; certain leaf diseases of truck crops and ornamentals. **CONTAINERS:** 5- and 30-gal. drums.

"Parzate" Zineb Fungicide: A wettable powder containing zineb (zinc ethylenebisdithiocarbamate). **USE:** To control early and late blights of tomatoes, potatoes, and celery; downy mildew and certain other leaf diseases of many vegetable crops; tobacco blue mold; for summer control of scab, sooty blotch, Brooks spot and black rot on apples. **CONTAINERS:** 3-lb. bags (12 in a case), 50-lb. bags.

"Parzate" C Zineb Fungicide: A wettable powder containing zineb (zinc ethylenebisdithiocarbamate). **USE:** For the control of fruit russetting and greasy spot on oranges and grapefruit in Florida, Texas, and Louisiana; other uses same as "Parzate" Zineb Fungicide. **CONTAINERS:** 3-lb. bags (16 in a case), 5-lb. bags (10 in a case), and 50-lb. bags.

"Parzate" D Zineb Fungicidal Composition: A finely divided powder containing zineb (zinc ethylenebisdithiocarbamate). **USE:** Sold to manufacturers or processors for preparation of fungicide dusts. **CONTAINERS:** 50-lb. bags.

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"Sulforon" Wettable Sulfur: Very finely divided sulfur; readily dispersible in water; not less than 97% sulfur; contains a wetting agent. **USE:** As a fruit fungicide for control of scab, brown rot, etc. **CONTAINERS:** 6-lb. bags (8 in a carton), 50-lb. bags.

"Sulforon" X Wettable Sulfur: Extremely finely divided wettable sulfur of 5 microns average particle size. **USE:** For control of brown rot, scab and certain other fungus diseases of fruits. **CONTAINERS:** 5-lb. bags (10 in a case), 50-lb. bags.

"Thylate" Thiram Fungicide: A wettable powder containing thiram (tetramethylthiuramdisulfide), off-white in color. **USE:** To control certain fungus diseases of apples, peaches, strawberries, celery (in plant beds), and tomatoes. It is particularly useful on varieties of apples susceptible to russetting such as Golden Delicious and on certain red varieties where depth and uniformity of color are desirable. **CONTAINERS:** 5-lb. bags (10 in a case), 50-lb. bags.

"Zerlate" Ziram Fungicide: A wettable powder containing ziram (zinc dimethyldithiocarbamate). **USE:** To control certain plant diseases of truck crops, fruits, and nuts. **CONTAINERS:** 3-lb. bags (12 in a case), 50-lb. bags.

WEED AND BRUSH KILLERS

"Ammate" X Weed and Brush Killer—95% Ammonium Sulfamate: **USE:** A non-selective weed and brush killer particularly effective for control of woody plants. Usually used as a foliage application at 60 lb. per 100 gal. of water for control of most species of brush. May be used dry or in solution for preventing sprout growth from stumps and for killing trees such as blackjack oak and various other weed trees. **CONTAINERS:** 40-lb. drums, 60-lb. bags.

"Ammate" Weed and Brush Killer Solution: This product contains 5.6 lb. of "Ammate" X Weed and Brush Killer per gal. For railroad use in tank car lots only.

"Dybar" Fenuron Weed and Brush Killer: Pellets containing 25% 3-phenyl-1,1-dimethylurea (fenuron). **USE:** For control of certain undesirable woody plants, such as oak, birch, locust, maple, pine, poplar and elm on fence rows, drainage ditches, utility and railroad right-of-ways, and other non-cultivated areas; spot treatment for control of bindweed. **CONTAINERS:** 10-lb. canisters (4 in a case), 50-lb. bags.

"Karmex" DL Diuron Herbicide: A suspension containing 28% 3-(3,4-dichlorophenyl)-1,1-dimethylurea (diuron). **USE:** For pre-emergence weed control in cotton. **CONTAINERS:** $\frac{1}{2}$ -gal. cans (6 in a case).

"Karmex" Diuron Weed Killer: A wettable powder containing 80% 3-(3,4-dichlorophenyl)-1,1-dimethylurea (diuron). **USE:** Selective weed control in certain crops such as sugar cane, pineapple, caneberries, alfalfa, grapes, cotton and peppermint; also for same non-selective uses as "Telvar" monuron weed killer. **CONTAINERS:** 2-lb. canisters (6 in a case).

"Kloben" Neburon Weed Killer: A wettable powder containing 50% 1-n-butyl-3-(3,4-dichlorophenyl)-1-methylurea (neburon). **USE:** Selective weed control in commercial nursery plantings of certain woody ornamental plants. **CONTAINERS:** 5- and 25-lb. fiber drums.

"Telvar" Monuron Weed Killer: A wettable powder containing 80% 3-(p-chlorophenyl)-1,1-dimethylurea (monuron). **USE:** As a non-selective weed killer on sites where bare ground is desired. Controls a wide range of annual and perennial grasses and herbaceous weeds. Recommended for non-cropland areas such as utility, highway, pipeline, and railroad right-of-ways; petroleum tank farms; lumberyards; industrial plant sites; irrigation and drainage ditches and around farm buildings; also for selective control of weed seedlings in certain crops such as asparagus, sugar cane, pineapple, and citrus; and as a spot treatment in cropland to control deep-rooted perennial weeds. **CONTAINERS:** 2-lb. canisters (6 in a case), 50-lb. bags.

"Trysben" 200 Weed Killer: An aqueous solution of the dimethylamine salt of trichlorobenzoic acid, containing 2 pounds of acid equivalent per gallon. **USE:** Control of many species of broadleaf weeds (especially deep-rooted perennials) and certain species of woody vines and brush. **CONTAINERS:** 1-gal. cans (4 in a case), 5- and 30-gal. drums.

"Zobar" Weed Killer: An aqueous solution of the dimethylamine salts of polychlorobenzoic acids, containing 4 pounds of acid equivalent per gallon. **USE:** Control of many species of broadleaf weeds (especially deep-rooted perennials) and certain species of woody vines and brush. **CONTAINERS:** 1-gal. cans (4 in a case), 5- and 30-gal. drums.

SOIL FUMIGANTS

VPM Soil Fumigant: A solution containing sodium methyldithiocarbamate. **USE:** For control of certain weeds, soil-borne fungus diseases, nematodes and garden centipedes as a pre-planting treatment to soil in plant propagation beds (ornamentals; vegetables and in certain states, tobacco), in the preparation of new turf areas and destruction of old turf prior to re-seeding, and for ornamental plants, food and fiber crops as a pre-planting treatment in the field. **CONTAINERS:** 1-gal. bottles (4 in a case), 5-, 30-gal. drums.

SEED DISINFECTANTS

"Arasan" 75 Thiram Seed Disinfectant and Protectant: Active ingredient—75% thiram (tetramethylthiuramdisulfide). Formulated for dry treatment of seed, but for special uses it may be applied as a slurry. **USE:** As seed treatment to reduce losses from seed decay and damping-off of field and sweet corn, peanuts, sorghum, rice, soybeans, peas, beans, cucurbits and other vegetable crop seeds; grass seed and small-seeded legumes such as alfalfa and clover; as an animal repellent on coniferous seed. **CONTAINERS:** $\frac{3}{4}$ -oz. envelopes, 8-oz. cans (24 in a case), 2-lb. canisters (12 in a case), 25- and 100-lb. drums.

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"Arasan" Thiram Seed Disinfectant and Protectant: Active ingredient—50% thiram (tetramethylthiuramdisulfide). USE: Same as "Arasan" 75. Formulated for dry treatment only. CONTAINERS: 25- and 100-lb. drums.

"Arasan" SF-X Thiram Seed Disinfectant and Protectant: Active ingredient—75% thiram (tetramethylthiuramdisulfide); wettable powder for slurry treatment. USE: For treatment of seeds of same crops for which "Arasan" 75 is recommended, with the exception of onions and conifers. CONTAINERS: 5½-oz. cans (24 in a case), 25- and 100-lb. drums.

"Arasan" SF-M Thiram Seed Disinfectant and Protectant: Contains 75% thiram (tetramethylthiuramdisulfide) plus 2% methoxychlor for added protection against storage insects; wettable powder for slurry treatment. USE: Treatment of same crop seeds for which "Arasan" SF-X is recommended. CONTAINERS: 25- and 100-lb. drums.

"Arasan" 42-S Thiram Seed Disinfectant and Protectant: A stable liquid suspension containing 4 lbs. thiram (tetramethylthiuramdisulfide) per gallon; particularly suited for slurry, dip, and spray application. USE: For treatment of seeds of the same crops for which other "Arasan" products are recommended; for spray application to sorghum fields grown for seed to inhibit seed-head mold; for application to fruit trees, ornamentals, shrubs and nursery stock as a repellent against rabbits, deer and birds. CONTAINERS: 1-gal. drums (4 in a case), 5- and 15-gal. drums.

"Ceresan" 75 Liquid Mercurial Seed Disinfectant: Active ingredients—ethyl mercury 2,3-dihydroxy propyl mercaptide and ethyl mercury acetate. Colors seed red. USE: Undiluted in ready-mix treaters for control of certain seed-borne diseases and to reduce losses from seed decay and damping-off of wheat, oats, barley, rye, sorghum, rice, flax and cotton. CONTAINERS: 5-, 30-, and 55-gal. drums.

"Ceresan" 100 Liquid Mercurial Seed Disinfectant: Active ingredients—same as "Ceresan" 75, but higher strength. Colors seed red. USE: Undiluted in ready-mix treaters, or diluted with water for use in slurry treaters for the same disease control and crop seed uses for which "Ceresan" 75 is recommended; for control of snow mold of wheat. CONTAINERS: 1-, 5-, 30- and 55-gal. drums.

"Ceresan" 200 Liquid Mercurial Seed Disinfectant: Active ingredients—same as "Ceresan" 75 and 100 but higher strength. Colors seed red. USE: Diluted with water in slurry treaters for the same disease control and crop seed uses for which "Ceresan" 75 and 100 are recommended; for control of snow mold of wheat. CONTAINERS: 5-, 30- and 55-gal. drums.

"Ceresan" M Seed Disinfectant: Active ingredient—ethyl mercury p-toluene sulfonamide. USE: As a dust or as a slurry treatment for the same disease control and crop seed uses as the "Ceresan" liquid mercurials plus sugar beet seed; for control of snow mold of wheat. CONTAINERS: 14-oz. cans (12 in a case), 3-lb. cans (6 in a case), 40- and 100-lb. drums.

"Ceresan" (New Improved) Seed Disinfectant: Active ingredient—ethyl mercury phosphate. USE: Particularly effective as a dip treatment for gladiolus corms. May also be used as a dust treatment on the same crops and for the same purposes as "Ceresan" M. CONTAINERS: 1-lb. (12 in a case) and 100-lb. drums.

"Ceresan" (2%) Seed Disinfectant: Active ingredient—ethyl mercury chloride. USE: For treatment of cotton, peanuts, and pea seeds to control the numerous seed-borne diseases and to reduce seed decay and check damping-off; and as a short soak treatment for basal rot of narcissus bulbs. CONTAINERS: 1½-lb. cans (12 in a case), 75-lb. drums.

"Delsan" A-D Seed Protectant: Active ingredients—thiram (tetramethylthiuramdisulfide) and dieldrin (hexachlorocyclooctahydro-endo, exo-dimethanonaphthalene). Combination fungicide and insecticide seed treatment for corn, peas, beans, cucurbits, rice and sorghum to reduce losses from seed decay, seedling blight, and certain soil insects. For use as a slurry treatment. CONTAINERS: 7-oz. cans (24 in a case), 25- and 100-lb. drums.

"Semesan" Seed Disinfectant: Active ingredient—hydroxymercurichlorophenol. USE: For dust or dip treatment to control seed-borne diseases, reduce seed decay, and check damping-off of seedlings of vegetable, flower, and certain other crop seeds, bulbs, corms, roots, and tubers. CONTAINERS: 4-oz. cans (36 in a case); 12-oz. cans (12 in a case) and 25-lb. pails.

"Semesan Bel" Dip Disinfectant: Active ingredients—hydroxymercurinitrophenol and hydroxymercurichlorophenol. USE: For dip treatment of Irish and sweet potatoes (seed pieces or slips) to protect against decay and control certain surface-borne diseases. CONTAINERS: 3-oz. cans (48 in a case), 1-lb. cans (12 in a case), 4-lb. cans (6 in a case), 40-lb. pails.

TURF FUNGICIDES

"Semesan" Turf Fungicide: Active ingredient—hydroxymercurichlorophenol. USE: For prevention and control of brown patch and other fungus diseases on fine turf of lawns and golf greens. May be used in combination with "Tersan" 75 for broader, more effective disease control and greater safety to turf. CONTAINERS: 1½-lb. cans (12 in a case), 25-lb. and 100-lb. drums.

"Tersan" 75 Thiram Fungicide: Active ingredient—thiram (tetramethylthiuramdisulfide). USE: For treatment of turf to control brown patch and dollar spot; for control of stem rot of sweet potatoes; for control of basal rot and decay of gladiolus bulbs. CONTAINERS: 8-oz. cans (24 in a case), 2-lb. bags (8 in a case), 3-lb. bags (12 in a case).

"Tersan" OM Thiram-Organic Mercury Turf Fungicide: Active ingredients—thiram (tetramethylthiuramdisulfide) and hydroxymercurichlorophenol. A combination product utilizing the advantages of both thiram and organic mercury; ready to use formula eliminates spray tank mixing of separate products. USE: For the prevention and control of large brown patch, dollar spot, copper spot, and certain other diseases on golf greens, grass tennis courts, lawns and other fine turf. CONTAINERS: 3-lb. cans (6 in a case).

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NITROGEN PRODUCTS

Ammonium Sulfate— $(\text{NH}_4)_2\text{SO}_4$: Light tan crystalline solid; guaranteed analysis not less than 21.0% nitrogen. USE: In manufacture of mixed fertilizers. CONTAINERS: Shipments in car lots in bulk only from Belle, West Virginia.

"NuGreen" Fertilizer Compound: Tiny round green pellets, much like buckshot in size and shape, specially treated to maintain free-flowing, non-caking characteristics; contains 45% urea-nitrogen. USE: As a nitrogen fertilizer for spray application to the foliage of plants or for soil application either direct or in mixed fertilizers. CONTAINERS: 80-lb. paper bags.

"NuGreen" L-B Fertilizer Compound: Light tan granular solid specially treated to maintain relatively free-flowing, non-caking characteristics; contains 45% urea-nitrogen, less than 0.2% biuret. USE: As a low-biuret nitrogen fertilizer for spray application to citrus crops. CONTAINERS: 80-lb. paper bags.

"Uramite" Fertilizer Compound: Odorless yellow granular solid containing nitrogen principally in the form of methylene ureas; remains free flowing under all conditions; contains 38% nitrogen, only slightly soluble in water. USE: As a direct application fertilizer for turf grasses and ornamental plants, or other crops requiring a long period of a continuous and uniform supply of nitrogen. CONTAINERS: 25- and 50-lb. paper bags.

"Uramite" M Fertilizer Compound: Gray-white granular solid containing nitrogen principally in the form of methylene ureas; remains free flowing under all conditions; contains 38% nitrogen, only slightly soluble in water. USE: As a high-quality, long-feeding nitrogen source in specialty mixed fertilizers. CONTAINERS: 80-lb. paper bags.

"Uramon" Ammonia Liquors: Solutions of crude urea and ammonium sulfate in aqueous ammonia.

	Nitrogen Content	Vapor Pressure (lb./sq. in., 70°F.)
UAL-B	45.5%	22
UAL-K	40.5%	1.0
UAL-37	37.0%	2
UAL-S	43.5%	20

UAL-37 also supplies water-insoluble organic nitrogen. USE: In manufacture of fertilizers. CONTAINERS: Tank cars.

NUTRITION AND THERAPY PRODUCTS

Diphenylamine Refined Flake Industrial— $(\text{C}_6\text{H}_5)_2\text{NH}$: A granular product for use in the preparation of screwworm remedies applied to livestock. Sold only to manufacturers for further compounding. CONTAINERS: 100-lb. bags.

"Hydan" Feed Supplement: Methionine hydroxy analogue calcium 90%. USE: A source of methionine (an essential amino acid) for poultry, dog and livestock feeds. CONTAINERS: 50-lb. bags.

"Impedex" Sodium Propionate N.F.: White powder containing sodium propionate. USE: For inhibition of heating and mold growth in feeds, and as an aid in the control and prevention of ketosis. CONTAINERS: 50-lb. bags.

"Two-Sixty-Two" Feed Compound: Free-flowing, non-caking granules; contains 42% urea-nitrogen equivalent to 262% crude protein (nitrogen x 6.25). USE: As an ingredient of feeds for ruminants (dairy cows, beef cattle, sheep). Recommended for use by commercial feed manufacturers only. CONTAINERS: 80-lb. bags.

MISCELLANEOUS

Diethylamine — Technical — $(\text{C}_2\text{H}_5)_2\text{NH}$: For use in manufacture and formulation of pesticides. CONTAINERS: 5-, 55-gal. drums, tank cars.

Dimethylamine—Anhydrous Technical— $(\text{CH}_3)_2\text{NH}$: For use by manufacturers in formulating weed killers and other pesticides. CONTAINERS: 100-lb. cylinders, tank cars, tank trucks.

40% Dimethylamine Solution— $(\text{CH}_3)_2\text{NH}$: For use by manufacturers in formulating 2,4-D and 2,4,5-T weed killers and other pesticides. CONTAINERS: 50-gal. drums (nonreturnable), tank cars, tank trucks.

Emulsifying Agent A: An oil soluble composition designed for use in preparation of emulsifiable oil formulations. CONTAINERS: 1-gal. cans, 5-gal. drums (nonreturnable).

Monomethylamine—Anhydrous Technical— CH_3NH_2 : For use in manufacture and formulation of pesticides. CONTAINERS: 100-lb. cylinders, tank cars, tank trucks.

40% Monomethylamine Solution— CH_3NH_2 : For use in manufacture and formulation of pesticides. CONTAINERS: 50-gal. drums (nonreturnable), tank cars, tank trucks.

Spreader-Sticker: An amber colored liquid containing a wetting and sticking agent. USE: As a spreading and sticking agent for agricultural sprays. CONTAINERS: 1-pt. cans (16 in a case), 1-gal. cans (6 in a case), 5-gal. drums (nonreturnable). (See also under Garden Products, Page 65.)

GARDEN PRODUCTS

(Small Package Items for the Home Gardener)

Combination Insecticide-Fungicide Products:

Floral Dust: Wettable powder for use as a dust or water spray. USE: For insect and disease control on a wide variety of flowers and ornamentals including roses. Controls many chewing and sucking insects, and is highly effective against plant diseases such as rose black spot, rusts, powdery mildew and certain leaf spot diseases. CONTAINERS: 8-oz. squeeze dusters, 1-lb. canisters, 3-lb. bags.

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Fruit Tree Spray: Wettable powder designed especially for water spray application. **USE:** For all sprays during the growing season on apples, peaches, cherries, pears, plums, quince, strawberries, currants and gooseberries. Controls major insect pests and fungus diseases damaging home fruit plantings. **CONTAINERS:** 14-oz. canisters, 3-lb. bags.

Rose Insecticide & Fungicide: Wettable powder for use as a dust or water spray. **USE:** Designed especially for roses but effective on most other flowers; controls major fungus diseases of roses and kills a wide range of insect pests, including red spider mites. **CONTAINERS:** 8-oz. squeeze dusters, 1-lb. canisters, 3-lb. bags.

Rose Spray-Duster: Pressurized sprayer that sprays both liquid insecticides and a dry fungicidal dust. **USE:** For insect and disease control on roses. **CONTAINERS:** 12-oz. aerosol cans.

Tomato Dust: Wettable powder for use as a dust or water spray. **USE:** For control of insect pests and blights commonly attacking tomatoes in home gardens. **CONTAINERS:** 8-oz. squeeze dusters, 2-lb. bags.

Vegetable Garden Dust: Wettable powder for use as a dust or water spray. **USE:** On all common vegetables. Controls a wide range of insect pests and is highly effective against many fungus diseases, including both early and late blights of tomatoes and potatoes. **CONTAINERS:** 8-oz. squeeze dusters, 1-lb. canisters, 3-lb. bags.

Fungicides:

"Fermate" Ferbam Fungicide: Highly effective disease control agent, safe on a wide range of plants, for water spray application. **USE:** For black spot and rust of roses, as well as many diseases of other flowers, vegetables, fruits, berries and tobacco. **CONTAINERS:** 9-oz. canisters, 2-lb. bags.

"Manzate" Maneb Fungicide: Wettable powder (light in color) for the control of black spot on roses, blights and other diseases of tomatoes, as well as many fungus diseases of certain vegetables, fruits, and ornamentals. **CONTAINERS:** 5½- and 11-oz. jars.

Insecticides:

Aphid & Mite Spray: Emulsifiable insecticide containing 50% malathion. **USE:** To control aphids, red spiders and many other insects on flowers, ornamentals, evergreens, fruits and vegetables. **CONTAINERS:** 1-fl. oz., 4-fl. oz., 1-pt. bottles.

6% Chlordane Dust: Insecticide for control of ants, Japanese beetle grubs, roaches, spiders, chiggers, and many other insect pests of the lawn, garden, soil, and household. **CONTAINERS:** 8-oz. squeeze dusters, 18-oz. canisters, 3-lb. bags.

72% Chlordane Insecticide: Emulsifiable insecticide for use as a liquid spray. **USE:** Concentrated form of chlordane for insect control on lawns, flowers, shrubs, and ornamental plants, and as a residual spray around building foundations for the control of termites. **CONTAINERS:** 8- and 16-fl. oz. bottles.

50% DDT: Wettable powder insecticide for use as a water spray. **USE:** Concentrated form of DDT for insect control on many garden and ornamental plants, on lawns, and as residual spray around buildings. **CONTAINERS:** 15-oz. canisters, 2-lb. bags.

Dormant Spray Oil: A highly refined, emulsifiable oil for the control of overwintering forms of certain scales, mites and aphids. **USE:** As a prefoliage spray on fruit trees, shade trees, ornamentals and evergreens. **CONTAINERS:** 1-qt. cans.

Garden Insecticide: Emulsifiable insecticide containing 25% methoxychlor and 25% malathion. **USE:** For the control of many insects on vegetables, fruits, flowers, ornamentals and evergreens. Also may be used to control flies, mosquitoes, roaches, ants, spiders, crickets, clover mite, and earwigs around dwellings, barns and other out-buildings. **CONTAINERS:** 4-, 8-, 16-, 32-oz. bottles, ½-gal. jugs.

50% Technical Methoxychlor: Wettable powder insecticide for use as a water spray. Has very low order of toxicity to humans; may be used close to harvest time. **USE:** For insect control on garden and ornamental plants; also highly effective as residual spray around buildings. **CONTAINERS:** 12-oz. canisters, 2-lb. bags.

Plant Food:

Ferro FTE (Fritted Trace Elements): Essential trace elements in a new slowly soluble form. **USE:** Soil mineralizer for gardens, lawns and potted plants; also for commercial crop use. **CONTAINERS:** 1-lb. canisters, 5-lb. bags.

Soluble Plant Food: High strength (19-22-16) fast-acting plant food for gardens, lawns and house plants. Readily soluble in water; feeds through leaves or roots. **USE:** As a foliage spray, transplanting solution, root feeding, grass feeding. **CONTAINERS:** 1-lb. bag, 4-lb. bags, 50-lb. bags.

Repellents:

Insect Repellent Lotion: Active ingredient—N,N-diethyl-meta-toluamide. **USE:** Repels many biting insects such as mosquitoes, chiggers, biting flies, ticks and gnats. For application to skin and clothing. **CONTAINER:** 1½-fl. oz. bottles.

Insect Repellent Sprayer: Active ingredient—N,N-diethyl-meta-toluamide. Pressurized sprayer particularly useful for application to clothing. **USE:** For repelling many biting insects including chiggers and ticks where application to outer garments is necessary. **CONTAINER:** 5-oz. aerosol can.

Seed Disinfectants:

The following are offered in small packages by Garden Products Section.

"Arasan" 75 Thiram Seed Disinfectant: (See Page 61).

New Improved "Ceresan" Seed Disinfectant: (See Page 62).

"Semesan" Seed Disinfectant: (See Page 62).

"Semesan Bel" Seed Disinfectant: (See Page 62).

"Tersan" 75 Turf Fungicide: (See Page 62).

INDUSTRIAL AND BIOCHEMICALS DEPARTMENT

BIOCHEMICALS

Weed and Brush Killers:

"Ammate" Weed and Brush Killer: A yellow, crystalline, water soluble solid containing 80% ammonium sulfate. USE: For the non-selective kill of undesirable plant growth; the outstanding control for poison ivy, poison oak, poison sumac. Very useful in eradicating vegetation in driveways, walks, tennis courts, etc. Effective for killing brush and certain trees; prevents sprouting of tree stumps. CONTAINERS: 2-lb. and 6-lb. bags.

Chickweed Killer: A selective weed killer for use on established lawns. Controls chickweed at any stage of growth. Contains neburon herbicide. 4-oz. package treats 1,000 sq. ft. CONTAINERS: 4-oz., 8-oz. canister.

Crabgrass Killer: Contains AMA (amine methyl arsenates), a new highly effective crabgrass control. Rapid acting and effective against seedling or mature crabgrass. 16-oz. covers up to 2,000 sq. ft. CONTAINERS: 16-oz., 32-oz., 1-gal. bottle.

Lawn Weed Killer: Non-volatile 2,4-D amine selective weed killer for application as a water spray. USE: For killing broad leaf lawn weeds such as dandelion and plantain; also effective against wild onion and certain woody plants such as Japanese honeysuckle and poison ivy. CONTAINERS: 8-fl. oz. cans.

Lawn Weed Killer No. 2: More concentrated formulation of 2,4-D amine than above; particularly useful for those having larger-than-average turf areas to maintain.

One quart size treats 21,000 sq. ft., about $\frac{1}{2}$ acre. USE: For killing most broad leaf lawn weeds and many woody plants. CONTAINERS: 16-oz., 1-qt. and $\frac{1}{2}$ -gal. cans.

Spray Adjuvant:

Spreader-Sticker: A liquid wetting and sticking agent for use in insecticide, fungicide and weed-killing sprays. CONTAINERS: 1-fl. oz. cans.

Miscellaneous:

Tree Wound Dressing: Pressurized sprayer. USE: For treatment of pruning, grafting, or other wounds of shade trees, fruit trees, ornamentals, roses, and other woody plants. Sets quickly, forming a protective seal. CONTAINERS: 12-oz. aerosol cans.

Sprayer: For attachment to garden hose. Sprayer features 3 interchangeable nozzles designed to handle all liquid and wettable powder garden chemicals. Has handy cut-off knob and anti-siphon protection.

Garden Flip-Duster: Dispenses a fine cloud of dust with just a flip of the wrist. Covers foliage evenly and easily.

Snail and Slug Pellets: Pellets absorb ground moisture expanding into an effective pest-attracting mound of bait to control snails and slugs. CONTAINERS: 1-lb., $2\frac{1}{2}$ -lb., and 5-lb. box.

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

GENERAL OFFICE: Nemours Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

DISTRICT OFFICES:

Atlanta 9, Georgia
Charlotte 1, North Carolina
Chicago 3, Illinois
Clifton, New Jersey
Palo Alto, California
Philadelphia 3, Pennsylvania
Rumford 16, Rhode Island

1261 Spring Street
427 West Fourth Street
7 South Dearborn Street
50 Page Road
701 Welch Road
1616 Walnut Street
50 North Broadway

TRinity 5-5391
FRanklin 5-5561
ANdover 3-7000
PRescott 3-5600
DAvenport 6-7550
KIingsley 5-1950
GEneva 4-6500

PLANT:

Deepwater, New Jersey

PRODUCTS

This Division supplies to the consuming industries a complete line of dyes, auxiliaries, textile finishes, surface active agents, wetting, dispersing, scouring and emulsifying agents. It also supplies organic chemical intermediates for the deodorant, disinfectant, dyes, explosives, fine chemicals, fireworks, insecticide, metal, petroleum, pharmaceutical, photographic, pigment, plastics, resins, rubber chemicals, soap, veterinary chemicals, and miscellaneous organic chemical industries.

DYES

Dyes are marketed in dry or wet form, depending on certain peculiarities or ultimate uses of the individual products. The dry dyes are generally finely divided powders, although there are colors marketed as small crystals, flakes or grains. The items sold in wet form vary in consistency from solutions to thick pastes.

Our dyes are sold under specific trademarks, various groups or classes of colors being given a distinctive trademark, as follows:

"Acetamine" Dyes: Designates a group of azo disperse dyes specifically developed for application to acetate and especially suited to the coloration of nylon.

"Capracyl" Dyes: Represents a group of neutral-dyeing acid colors that produce the highest possible degree of light fastness on nylon. Also suitable for dyeing wool, particularly in blends with cellulosic fibers.

"Celanthrene" Dyes: Designates a group of anthraquinone disperse dyes designed especially for dyeing acetate and also suitable for application to nylon.

"Chromacyl" Dyes: Describes a group of dyes that contain chromium in the dye molecule. Suitable for wool and nylon, these dyes are characterized by ease of application and good fastness.

"Dekatyl" Dyes: Designates a line of cationic dyes especially suited for dyeing "Dacron" type 62 and 64 polyester fiber.

"Diagen" Dyes: Designates a line of stabilized azoic colors that are used for printing cotton and rayon. They are tinctorially strong and have good fastness in full shades.

"Halopont" Pigment Colors: Designates a line of pigment colors. Used for tinting white paper.

"Latyl" Dyes: A group of disperse dyes developed particularly for coloration of "Dacron" polyester fiber, on which they have exceptionally good light- and wet-fastness properties.

"Leucosol" Dyes: Designates a line of vat colors which have been specially prepared for textile printing. Characterized by excellent application and fastness properties.

"Lithosol" Dyes and "Lithosol" Acids and Bases: Designates lines of dyes and chemicals specially prepared for the manufacture of lakes and organic pigments.

"Lusane" Dyes (Brilliant Blue B): A special dye for cotton, with outstanding brilliancy of shade and light-fastness.

"Luxol" Dyes: Designates a line of spirit- and lacquer-soluble dyes. Used in lacquers, wood stains, stamp inks, ball point pen inks, etc.

"Monastral" Pigments: Designates a type of insoluble pigments, producing extremely bright shades of blue and green with excellent fastness properties and high tinctorial strength. Used in the lake, wallpaper, paper, textile and other industries.

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

"Naphthanil" Dye Bases: Products used in combination with the various "Naphthanil" prepares to form insoluble azo dyes. Prior to coupling the bases must first be diazotized to form the diazo salt. Widely used on cotton and rayon textiles.

Oil Colors: Oil-soluble dyes used for a variety of purposes in which the prime requirement is good solubility in oils, waxes and similar materials.

Paper Whites: Designates fluorescent white dyes especially designed for improving the whiteness or brilliance of white papers.

"Ponsol" Dyes: Designates a line of anthraquinone vat dyes. Used for the dyeing and printing of cotton and rayon, and characterized by excellent fastness properties. Under controlled conditions, they can be applied to wool. Also used to a limited extent on certain classes of paper.

"Pontachrome" Dyes: Designates a line of colors for wool and nylon. Dyed by forming chromium lakes on the fiber. Used largely on materials such as men's suitings and overcoatings.

"Pontacyl" Dyes: Designates a line of acid colors for wool, nylon, silk, and "Orlon" acrylic fiber. Dyed in an acid bath. Produce bright shades and are used largely on materials for women's wear, bathing suits, sweater yarns, upholstery fabrics, etc.

"Pontamine" Diazo Dyes: Direct dyeing colors. After dyeing, they are diazotized and developed with various "Pontamine" developers, with resultant improvement in fastness, particularly fastness to washing. Used extensively on cellulosic fabrics which are to be printed subsequently with discharge patterns.

"Pontamine" Dyes: Designates a line of colors dyed directly in a water bath containing a salt. Used extensively in the textile industry for dyeing cotton and rayon; also applied on paper and leather.

"Pontamine" Fast Dyes: Direct dyeing colors of exceptionally good fastness to light.

"Pontamine" Whites: Designates fluorescent whitening agents that produce brilliant optical bleaches having outstanding wetfastness properties when applied to cotton and rayon. Also used in soaps, detergents, etc.

"Roracyl" Dyes: Represents a group of soluble dyes that have good affinity and fastness properties on "Orlon" acrylic fiber. They are used with selected acid dyes in many instances.

"Rotalin" Dyes: Designates a line of spirit-soluble printing colors. Used principally in the printing of glassine and other types of paper and cellophane.

"Sevron" Dyes: Designates a line of cationic dyes especially suited for dyeing "Orlon" acrylic fiber, having outstanding fastness properties on this fiber.

"Sulfanthrene" Dyes: Designates a line of thioindigoid vat dyes characterized by good fastness properties. Used principally for the dyeing and printing of cotton, rayon and silk.

"Sulfogene" Dyes: Designates a line of sulfur colors; dyed from a solution of sodium sulfide. Used extensively on cotton work-clothing fabrics and to a limited extent on rayon and other materials.

DYEING AUXILIARIES

"Acetamine" Developer—AD Extra: Designates a product used as a developing agent in the application of the diazo type dyes, principally blacks, to acetate fiber.

"Alkanol" LN Surface Active Agent: Clear light yellow liquid. USE: To minimize barré problem when acid dyes are applied to nylon filament fabrics.

Anti-Fume S Solution: A product in solution form for use as durable protective agent against atmospheric fading of dyed acetate.

Beta Naphthol: Designates a developing agent used in the dyeing of diazo or developed colors.

Hydrosulfite Concentrated (Sodium Hydrosulfite): White free flowing powder; hygroscopic; readily soluble in water. This product is used as a reducing agent in the dyeing of vat colors and also for the removal of color from previously dyed materials.

"Latyl" Carrier A: White powder. USE: To increase the dyeability of "Dacron" polyester fiber.

"Naphthanil" Azoic Compounds: Designates a line of azoic compounds used on cotton and rayon as a prepare prior to combining with the various "Naphthanil" dye bases and diazo colors to form insoluble dyes (See this page). Also combined directly with the diazotized bases to produce organic pigments for the lake and finishes industry.

"Pontamine" Developers TN, ZN and MPD: Designates products used as developing agents in the application of the diazo types of dyes. Used generally on textile fibers other than wool and acetate.

SURFACE ACTIVE AGENTS

(Wetting, Dispersing, Scouring and Emulsifying Agents)

"Alkanol" B Surface Active Agent: Light cream-colored powder. USE: As a wetting and dispersing agent, particularly with dyes, and as a surface tension reducing agent in the paper, leather, pigment and metal processing industries.

"Alkanol" Crude Solution Surface Active Agent—Alkyl-naphthalene Sodium Sulfonate: Clear light yellow liquid. USE: As a wetting and dispersing agent.

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

"Alkanol" DW Solution Surface Active Agent: Clear light yellow liquid. USE: A detergent with wetting and dispersing qualities for general use; resistant to hard water, acids and alkalis.

"Alkanol" S Flakes Surface Active Agent: Light cream-colored powder. USE: As a dispersing and solubilizing agent.

"Alkanol" WXN Surface Active Agent: Clear light yellow liquid. USE: As a wetting agent with rewetting properties.

"Alkanol" 189-S Surface Active Agent—Saturated Hydrocarbon Sodium Sulfonate: Light yellow liquid. USE: As a wetting and penetrating agent; retains its activity in hard water, acid and alkaline solutions.

"Duponol" 80 Surface Active Agent: Sodium salt of technical octyl alcohol sulfate. Light yellow liquid. USE: As a wetting and penetrating agent particularly effective in the presence of high concentrations of electrolytes.

"Duponol" C Sodium Lauryl Sulfate U. S. P.: White powder. Meets requirements of U. S. P. XIV for sodium lauryl sulfate. USE: As emulsifying and dispersing agent for cosmetic, dental and medical preparations.

"Duponol" D Paste Surface Active Agent: Sodium salt of unsaturated long chain alcohol sulfate. Yellow paste. USE: Powerful scouring, emulsifying, dispersing and wetting agent and detergent.

"Duponol" EP Surface Active Agent: Alkylolamine salt of saturated long chain alcohol sulfate. Light yellow viscous liquid. USE: As a detergent, wetting, dispersing and emulsifying agent having excellent solubility, color stability and foaming properties, particularly suitable for shampoos.

"Duponol" G Surface Active Agent: Amine salt of saturated long chain alcohol sulfate. Oil-soluble light yellow paste. USE: Powerful emulsifying agent for oils and solvents.

"Duponol" L-144-WDG Surface Active Agent: Sodium salt of a modified unsaturated long chain alcohol sulfate. Reddish-brown liquid. USE: Emulsifying in dry cleaning and fungicidal sprays.

"Duponol" LS Paste Surface Active Agent: Sodium salt of unsaturated long chain alcohol sulfate. Light yellow fluid paste. USE: Scouring and emulsifying agent in leather and textile industries.

"Duponol" ME Dry Surface Active Agent—Powder: Sodium salt of technical lauryl alcohol sulfate containing minimum electrolyte. White powder. USE: As emulsifying and dispersing agent in metal cleaning, electroplating, textile and leather processing.

"Duponol" OS Surface Active Agent: "Duponol" G plus long chain unsaturated alcohol. Clear yellow oil-soluble liquid. USE: Very effective emulsifying agent for preparing oil-in-water emulsions.

"Duponol" QC Sodium Salt of Technical Lauryl Alcohol Sulfate—Fluid Liquid: Carefully controlled and standardized to provide a raw material for shampoos which allows manufacture from a single product of types which vary from clear liquids to pastes.

"Duponol" SN Surface Active Agent: Sodium salt of saturated long chain alcohol sulfate. Clear light yellow liquid. USE: As a detergent, wetting, dispersing and emulsifying agent with exceptionally high foaming power designed for use in shampoos and hand cleaners.

"Duponol" ST Surface Active Agent: Alkylolamine salt of saturated long chain alcohol sulfate. Light yellow liquid. USE: Preparation of liquid shampoos.

"Duponol" WA Dry Surface Active Agent—Flakes: Sodium salt of technical lauryl alcohol sulfate. Light yellow flakes. Dry form of "Duponol" WA Paste.

"Duponol" WA Paste Surface Active Agent: Sodium salt of technical lauryl alcohol sulfate. Viscous white paste. USE: As a detergent, wetting, dispersing and emulsifying agent in cosmetics, metal, leather, building materials, paper, pigment and cleaning compound industries, and in shampoos.

"Duponol" WAQ Surface Active Agent: Sodium salt of technical lauryl alcohol sulfate. Fluid white paste. USE: More fluid form of "Duponol" WA Paste designed primarily for shampoos.

"Duponol" WAQE Surface Active Agent: Sodium salt of technical lauryl alcohol sulfate. Fluid liquid. USE: Carefully controlled and standardized for use as emulsifying agent in emulsion polymerization industry.

"Duponol" WAT Surface Active Agent: Alkylolamine salt of long chain alcohol sulfate. Clear yellow viscous liquid. USE: As a detergent, wetting, dispersing and emulsifying agent of high solubility and good foaming, particularly suitable for shampoos.

"Duponol" WS Surface Active Agent: "Duponol" G plus long chain saturated alcohol. Light cream-colored waxy solid. USE: A wax-soluble emulsifying agent for preparing water-in-oil emulsions.

"Duponol" XL Surface Active Agent: Modified long chain alcohol sulfate. Clear light yellow colored liquid. USE: Shampoo base for high quality clear liquid shampoos.

"Petrowet" R Surface Active Agent: Light yellow liquid. A wetting and penetrating agent effective in high concentrations of electrolytes and especially for use in 15% hydrochloric acid for oil-well acidizing.

"Petrowet" WN Surface Active Agent: Sodium salt of saturated long chain alcohol sulfate. Light yellow liquid. USE: For wetting and penetrating in acid solution.

"Zonyl" S-13 Fluorochemical Surfactant: Free acid of fluoroalkyl phosphate. Brown waxy solid. USE: Chemically stable surface active agent.

TEXTILE SPECIALTIES

"Alkanol" HC Surface Active Agent: Nonionic waxy solid. USE: As a detergent, dispersing and emulsifying agent.

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

"Alkanol" HCS Surface Active Agent: Nonionic fluid paste. **USE:** As a detergent, dispersing and emulsifying agent. Pitch dispersing agent and penetrant in paper pulp production.

"Alkanol" HGN Textile Processing Agent: Saturated hydrocarbon sulfonate composition. Clear light yellow liquid. **USE:** As a wetting agent for conditioning and wet twisting of yarn. Possesses limited fungicidal properties.

"Alkanol" WXN Surface Active Agent: (See Surface Active Agents, Page 68.)

"Aridex" L Concentrated Renewable Water Repellent: Stable white dispersion. **USE:** As a water repellent for textiles.

"Aridex" WP Renewable Water Repellent: Stable white dispersion possessing maximum exhausting properties on textiles.

"Avitex" AD Surface Active Agent: Clear reddish-brown liquid. **USE:** As a penetrating agent for textile dyeing and finishing.

"Avitex" C Softener: Light cream-colored paste. **USE:** As a textile softening and finishing agent primarily for use on cotton; and as paper coating plasticizer.

"Avitex" FB Antistatic Developer: Light yellow to brown translucent gel. **USE:** As an exhausting agent for "Zelec" DX durable antistatic agent. Produces a soft, dry, non-tacky finish having an excellent antistatic effect.

"Avitex" K Durable Softener: Nonionic white paste. **USE:** Softener and modifier for resin finishes in cellulosic fiber fabrics.

"Avitex" NA Softener: Cationic light tan paste. **USE:** For softening and antistatic effects on all fibers.

"Avitex" Q Softener: Cationic white paste. **USE:** Softening cotton and synthetic fiber fabrics alone or with resins.

"Avitex" R Softener: Cationic light tan paste. **USE:** For softening and antistatic effects on all synthetic fibers.

"Avitex" SF Softener: White paste. **USE:** As a textile softening and finishing agent giving a less oily hand than "Avitex" C softener. Primarily for use on synthetics.

"Avitex" W Softener: White paste. **USE:** As a softening and finishing agent on synthetic textiles to obtain a waxy hand.

"Avitone" A Softener: A saturated hydrocarbon sodium sulfonate composition resistant to oxidation, discoloration and rancidity. Light tan paste. **USE:** As a leather finishing agent; softener in paper coatings; cotton finishing agent as a pure finish, or as a softener and plasticizer for starch and thermoplastic resins.

"Avitone" AL Softener: Similar to "Avitone" A softener with added lubricity to improve sewability for cotton and synthetics.

"Avitone" SR Softener: An anionic hydrocarbon sodium sulfonate type product. Light tan paste. **USE:** Softener for textiles particularly where absorbency is desired.

"Avitone" T Softener: An anionic hydrocarbon sodium sulfonate type product. Semi-fluid paste. **USE:** Softener for toweling and denims and pasting agent for disperse dyes. Results in highly absorbent finishes.

"Duponol" D Paste Surface Active Agent: (See Surface Active Agents, Page 68.)

"Duponol" LS Paste Surface Active Agent: (See Surface Active Agents, Page 68.)

"Duponol" RA Surface Active Agent: Anionic liquid. **USE:** Excellent scouring, emulsifying, dispersing and wetting agent.

"Duponol" WA Dry Surface Active Agent—Powder: (See Surface Active Agents, Page 68.)

"Duponol" WA Paste Surface Active Agent: (See Surface Active Agents, Page 68.)

"Hydraphtal" Textile Processing Agent: Light yellow liquid combining solvent and scouring properties. **USE:** For heavy duty degreasing of textiles and leather.

"Merperline" Surface Active Agent: Red-brown liquid with good wetting and solvent properties. **USE:** As a wetting and scouring agent in the yarn dyeing and leather industries.

"Merpol" B Surface Active Agent: Yellow liquid. Wetting, penetrating, leveling, dispersing and homogenizing agent. **USE:** As a kier boiling assistant in the textile industry.

"Merpol" C Surface Active Agent: Clear yellow liquid. Cleansing, dispersing, penetrating and emulsifying agent. **USE:** As a solvent, penetrant, boiling off and dyeing assistant in the textile and leather industries.

"Merpol" F Surface Active Agent: Clear amber liquid. **USE:** As a dyeing assistant particularly for rawstock, beam and package dyeing. Low foaming.

"Methacrol" Lubricant C: Light cream-colored cationic acidic dispersion. **USE:** As boarding lubricant for nylon hosiery.

"Methacrol" Lubricant K: Light cream-colored cationic acidic dispersion. **USE:** As boarding lubricant with softening properties for nylon hosiery.

"Methacrol" FF Resin Dispersion: Light cream-colored acidic dispersion of thermoplastic resin. **USE:** As a stiffening finish for cellulosic and hydrophobic fibers.

ORGANIC CHEMICALS DEPARTMENT

"Methacrol" FNH Resin Dispersion: Light cream-colored acidic dispersion of thermoplastic resin substantive to all fibers. **USE:** In finishing low denier nylon hose to impart body.

"Methacrol" NH Resin Dispersion: Light cream-colored acidic dispersion of thermoplastic resin substantive to nylon fiber. **USE:** In finishing nylon hose to impart snag resistance.

"Nalan" RF Durable Water Repellent: Light cream-colored viscous paste dispersion. **USE:** Along with thermo-setting resins as a softener modifier to obtain improved crease resistance and wash-and-wear properties on cotton fabric.

"Neomerpin" N Surface Active Agent—Aromatic Sulfonic Acid: Brown liquid. **USE:** As a wetting and penetrating agent for use in acid media by the textile and leather industries.

"Ondal" A Oxidizing Agent: White powder. **USE:** For one-bath oxidizing and soaping of vat colors in the textile industry.

Product BCO Surface Active Agent—Cetyl Betaine: An amphoteric amber liquid showing cationic properties in acidic solutions and anionic properties in alkaline solutions. **USE:** As a wetting agent, detergent and dyeing assistant particularly effective in alkaline peroxide bleaching processes and other operations employing high concentrations of acids or alkalis.

Retarder LAN Surface Active Agent: Cationic amber liquid. **USE:** In acid and electrolyte solutions; dye retarding and stripping agent primarily for use with azoic colors.

"Shirlan" Extra Industrial Fungicide—Technical Salicylanilide: Light cream-colored powder. **USE:** As a fungicide for general industrial use where low toxicity to humans is essential.

"Shirlan" A Industrial Fungicide—Dispersed Salicylanilide: Cream-colored aqueous dispersion of "Shirlan" Extra. **USE:** For imparting mildew resistance to textiles. Particularly designed for use with "Aridex" water repellents.

"Shirlan" D Industrial Fungicide—Dispersible Salicylanilide: Cream-colored powder. Water dispersible form of "Shirlan" Extra. **USE:** For imparting mildew resistance to yarn or fabric in sizing or finishing mix.

"Sitol" Flakes Oxidizing Agent—Sodium Salt of Nitrobenzene Meta Sulfonic Acid: Cream-colored powder. **USE:** As a protective oxidizing agent in discharge printing.

Spinning Lubricant L: Pale yellow liquid. **USE:** As a textile spinning lubricant with antistatic properties.

"Tetralin" Solvent—Tetrahydronaphthalene—C₁₀H₁₂: Water-white liquid. **USE:** In the textile, soap and manufactured gas industries, and as a chemical intermediate.

DYES AND CHEMICALS DIVISION

"Zelan" AP Paste Durable Water Repellent: A long chain nitrogen complex. Tan paste. **USE:** For mill application, to impart to fabrics water, spot and stain resistance, retained after repeated laundering or dry cleaning.

"Zelan" FF Durable Water Repellent: A long chain nitrogen complex. White paste. **USE:** For mill application to impart water, spot and stain resistance to heavy pile fabrics, corduroys, etc., retained after repeated laundering or dry cleaning.

"Zelec" DP Durable Antistatic Agent: Stable, fluid, milky dispersion. **USE:** To reduce static electricity in synthetic fibers and fabrics, remaining effective through repeated launderings with soap.

"Zelec" DX Durable Antistatic Agent: Light-colored translucent, viscous paste. **USE:** To reduce static electricity in synthetic fibers and fabrics, remaining effective through repeated launderings with soap.

"Zelec" NE Non-Durable Antistatic Agent: Amber-colored translucent, viscous paste. **USE:** To reduce static electricity in processing synthetic fibers and fabrics. Finish is readily removed by laundering and has no effect on subsequent finishing or dyeing operations.

"Zelec" NK Non-Durable Antistatic Agent: Anionic composition of alcohol phosphates. Amber-colored translucent paste. **USE:** To reduce static electricity in processing synthetic fibers and fabrics. Finish is readily removed by laundering and has no effect on subsequent finishing or dyeing operations. More oil soluble than "Zelec" NE.

"Zeset" Fabric Stabilizer: A clear solution of a chemical which will react with cellulosic materials. **USE:** In finishing textiles and other fibers to impart crease resistance, dimensional stability and hydrophobic characteristics.

LEATHER SPECIALTIES

"Duponol" LS Paste Surface Active Agent: (See Surface Active Agents, Page 68.)

"Hydraphtal" Textile Processing Agent: (See Textile Specialties, Page 69.)

"Merpentine" Surface Active Agent: (See Textile Specialties, Page 69.)

"Merpel" C Surface Active Agent: (See Textile Specialties, Page 69.)

"Methacrol" LB Resin Dispersion: Anionic alkaline dispersion of unplasticized thermoplastic resin. Light cream-colored liquid. **USE:** As a base for seasoning to obtain a hard top finish for leather and leather articles.

"Methacrol" LBM Resin Dispersion: Anionic alkaline dispersion of moderately plasticized thermoplastic resin. Light cream-colored liquid. **USE:** As a base for seasoning to obtain a flexible finish for leather and leather articles.

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

"Methacrol" LBP Resin Dispersion: Anionic alkaline dispersion of highly plasticized thermoplastic resin. Light cream-colored liquid. **USE:** As a base for seasoning to obtain a soft flexible finish for leather and leather articles.

"Neomerpin" N Surface Active Agent—Aromatic Sulfonic Acid: (See Textile Specialties, Page 70.)

"Zoron" CR Resin Finish: A clear solution of thermosetting resin. **USE:** Synthetic tanning assistant to tighten leather grain.

"Zoron" TR Polymer Emulsion: Anionic alkaline dispersion of unplasticized thermoplastic resin. Light cream-colored liquid. **USE:** As a base for seasoning to obtain a glossy top finish for leather and leather articles.

MISCELLANEOUS SPECIALTIES

"Aridex" DCN Renewable Water Repellent: White crystalline paste, soluble in petroleum solvent. **USE:** As water repellent particularly after dry cleaning with petroleum solvent.

"Decalin" Solvent—Decahydronaphthalene—C₁₀H₁₈: Water-white liquid. **USE:** As a solvent and as a chemical intermediate.

"Duponol" L-142 Surface Active Agent—Fatty Alcohol Sodium Sulfate: Sodium salt of saturated long chain fatty alcohol sulfate. White powder. **USE:** To impart emollient effects in cosmetic preparations.

"Ocenol" Technical Oleyl Alcohol: Light yellow liquid. **USE:** As a chemical intermediate.

"Shirlan" Extra Industrial Fungicide—Technical Salicylanilide: (See Textile Specialties, Page 70.)

"Tetralin" Solvent—Tetrahydronaphthalene—C₁₀H₁₂: (See Textile Specialties, Page 70.)

"Tyzor" Organic Titanates: A series of esters of ortho titanic acid. **USE:** As adhesion primers, binders for high temperature paints, pigment dispersants and moisture scavengers.

"Vydax" Fluorocarbon Telomers: Chemically and thermally stable, insoluble, nonflammable, dry lubricants and release agents.

"Zelcon" C Fabric Conditioner: Cationic fabric softener and conditioner, 100% active, viscous amber fluid. **USE:** As the active ingredient in compounded home laundry fabric softeners and conditioners.

"Zonyl" E-7 Fluoroalkyl Ester: Fluoroalcohol pyromellitate. Amber oil. **USE:** Thermally stable fluid-lubricant and power fluid.

"Zonyl" E-91 Fluoroalkyl Ester: Fluoroalcohol camphorate. Amber oil. **USE:** Thermally stable liquid-lubricant and power fluid.

MISCELLANEOUS PRODUCTS

MBT (2-Mercaptobenzothiazole): Corrosion inhibitor. Powder form. Oil free.

Sodium MBT 50% Solution: A 50% water solution of sodium mercaptobenzothiazole of high purity. **USE:** Corrosion inhibitor for anti-freeze.

"Zepar" BP Reducing Agent: White free-flowing granular powder readily soluble in water. **USE:** Bleaching agent for groundwood pulp.

INTERMEDIATES*

5-Acetamido-8-amino-2-naphthalenesulfonic acid Technical
8-Acetamido-5-amino-2-naphthalenesulfonic acid Technical
8-Acetamido-2-naphthalenesulfonic acid, magnesium salt Technical
p-Aminoacetanilide Technical
5-Amino-2-(p-aminoanilino)benzenesulfonic acid Technical
1-Aminoanthraquinone Technical
2-Aminoanthraquinone Technical
N-(5-Amino-1-anthraquinonyl)anthranilic acid Technical
N-(8-Amino-1-anthraquinonyl)anthranilic acid Technical
4-Aminoazobenzene-3,4'-disulfonic acid Technical
4-Aminoazobenzene hydrochloride Technical
4-Aminoazobenzene-4'-sulfonic acid Technical
Aminoazotoluene Technical

*The Intermediates in this list are presented alphabetically by the Du Pont sales names. It should be noted that these sales names are a mixture of the Chemical Abstracts system, the Geneva system and trivial names. There are no cross-references among these systems.

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

1-Amino-4-benzamidoanthraquinone Technical
1-Amino-5-benzamidoanthraquinone Technical
6-(p-(p-Aminobenzamido)benzamido)-1-naphthol-3-sulfonic acid Technical
6-(m-Aminobenzamido)-1-naphthol-3-sulfonic acid Technical
6-(p-Aminobenzamido)-1-naphthol-3-sulfonic acid Technical
5-Amino-2(3H)-benzimidazolone Technical
p-Aminobenzoic acid Technical
1-Amino-4-bromo-2-anthraquinonesulfonic acid, sodium salt Technical
1-Amino-4-bromo-2-methylantraquinone Technical
1-Amino-2-bromo-4-p-toluidinoanthraquinone Technical
1-Amino-5-chloroanthraquinone Technical
1-Amino-8-chloroanthraquinone Technical
2-Amino-1-chloroanthraquinone Technical
2-Amino-4-chlorophenol Technical
1-Amino-2,4-dibromoanthraquinone Technical
5-Amino-2-(2,3-dihydro-2-oxo-5-benzimidazolylamino)benzenesulfonic acid Technical
p-Aminodiphenylamine Technical
1-Amino-4-hydroxyanthraquinone Technical
1-Amino-4-methoxyanthraquinone Technical
m-(4-Amino-3-methoxyphenylazo)benzenesulfonic acid Technical
1-Amino-2-methoxy-4-(p-tolylsulfonamido)anthraquinone Technical
1-Amino-2-methylantraquinone Technical
1-Amino-2-methyl-4-p-toluidinoanthraquinone Technical
1-Aminonaphth(2,3-c)acridine-5,8,14(13H)-trione Technical
4-Aminonaphth(2,3-c)acridine-5,8,14(13H)-trione Technical
6-Amino-1,3-naphthalenedisulfonic acid, disodium salt Technical
7-Amino-1,3-naphthalenedisulfonic acid, dipotassium salt Technical
4-Amino-1,6(and 1,7)-naphthalenedisulfonic acid Technical
7-Amino-1,3,6-naphthalenetrisulfonic acid, disodium salt Technical
4-Amino-1,3,5-naphthalenetrisulfonic acid, 4,5-sultam, trisodium salt Technical
1-Amino-6-naphthol Technical
1-Amino-6(and 7)-naphthol Technical
1-Amino-7-naphthol Technical
1-Amino-2-naphthol-4-sulfonic acid Technical
p-Aminophenol Technical
2-Amino-1-phenol-4-sulfonamide Technical
2-Amino-1-phenol-4-sulfonic acid Technical
1-(m-Aminophenyl)-3-methyl-5-pyrazolone hydrochloride Technical
1-(m-Aminophenyl)-5-oxo-2-pyrazoline-3-carboxylic acid Technical
2-Aminotoluene-5-sulfonic acid, sodium salt Technical
5-Amino-o-toluenesulfonic acid Technical
5-Amino-2-(p-toluidino)benzenesulfonic acid Technical
4-(4-Amino-m-tolylazo)-m-toluenesulfonic acid Technical
Aniline-2,5-disulfonic acid Technical
1-Anilino-2-anthraquinonecarboxylic acid Technical
1-Anilino-4-hydroxyanthraquinone Technical
p-Anilinophenol Technical
o-Anisidine Technical
p-Anisidine Technical
o-Anisidinomethanesulfonic acid, sodium salt Technical
Anthraflavic acid Technical
Anthranilic acid Technical
Anthra(1,9)pyrazol-6(2H)-one Technical
1,5-Anthraquinonedisulfonic acid, disodium salt Technical

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

1-8-Anthraquinonedisulfonic acid, disodium salt Technical
 2,6-Anthraquinonedisulfonic acid, disodium salt Technical
 1-Anthraquinonesulfonic acid, sodium salt Technical
 2-Anthraquinonesulfonic acid, sodium salt Technical
 N,N'-1,5-Anthraquinonylenediantbranilic acid Technical
 1,1'-(1,5-Anthraquinonyleneditimino)dinaphth(2,3-c)acridine-5,8,14(13H)-trione Technical
 (1-Anthraquinonyl)-1,2-hydrazinedisulfonic acid, disodium salt Technical
 Anthrarufin Technical
 4',4'''-Azobis-4-biphenylcarboxylic acid, disodium salt Technical
 4-(4-Benzamido-1-anthraquinonylamino)naphth(2,3-c)acridine-5,8,14(13H)-trione Technical
 1-Benzamido-4-chloroanthraquinone Technical
 1-Benzamido-5-chloroanthraquinone Technical
 Benzanilide Technical
 7H-Benz(de)anthracen-7-one Technical
 o-Benzoylbenzoic acid Technical
 (3,3'-Bi-7H-benz(de)anthracene)-7,7'-dione Technical
 (4,4'-Bi-7H-benz(de)anthracene)-7,7'-dione Technical
 (1,1'-Binaphthalene)-8,8'-dicarboxylic acid Technical
 1,4-Bis(1-anthraquinonylamino)anthraquinone Technical
 1,5-Bis(1-anthraquinonylamino)anthraquinone Technical
 4,4'-Bis(diethylamino)benzophenone Technical
 4,4'-Bis(dimethylamino)benzhydrol Technical
 4,4'-Bis(dimethylamino)benzophenone Technical
 1,5-Bis(2,4-dinitrophenoxy)-4,8-dinitroanthraquinone Technical
 1,4-Bis(2,4,6-triethylanilino)anthraquinone Technical
 3-Bromo-7H-benz(de)anthracen-7-one Technical
 1-Bromo-4-methylaminoanthraquinone Technical
 2-Bromo-3-methylanthraquinone Technical
 1-(9-Bromo-7-oxo-7H-benz(de)anthracen-3-ylamino)anthraquinone Technical
 o-(3-Bromo-p-toluoyl)benzoic acid Technical
 2-Bromo-1,3,5-triethylbenzene Technical
 p-Butylaniline Technical
 2-tert-Butylanthraquinone Technical
 N,N'-Carbonylbis(4-methoxymetanilic acid), disodium salt Technical
 Chicago Acid Technical
 4-Chloro-2-aminobenzoic acid Technical
 2-Chloro-4-aminotoluene Technical
 4-Chloro-2-aminotoluene Technical
 6-Chloro-2-aminotoluene Technical
 m-Chloroaniline Technical
 o-Chloroaniline Technical
 p-Chloroaniline Technical
 Chloroanilines Mixed C Technical
 5-Chloro-o-anisidine Technical
 1-Chloroanthraquinone Technical
 1-Chloro-2-anthraquinonecarboxylic acid Technical
 Chlorobenzene Technical
 o-(p-Chlorobenzoyl)benzoic acid Technical
 2-Chloro-N,N-diethyl-4-nitroaniline Technical
 3-Chlorodiphenylamine Technical
 4-Chlorometanilic acid Technical
 1-Chloro-2-methylanthraquinone Technical
 2-Chloro-4-nitroaniline Technical
 4-Chloro-2-nitroaniline Technical

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS

4-Chloro-2-nitroanisole Technical
 1-Chloro-5-nitroanthraquinone Technical
 1-Chloro-8-nitroanthraquinone Technical
 4-Chloro-3-nitrobenzenesulfonamide Technical
 2-Chloro-5-nitrobenzenesulfonic acid, sodium salt Technical
 4-Chloro-2-nitrophenol Technical
 4-Chloro-2-nitrotoluene Technical
 4(and 6)-Chloro-2-nitrotoluene Technical
 6-Chloro-2-nitrotoluene Technical
 4-Chlorophthalic acid Technical
 6-Chloroquinaldine Technical
 6-Chloroquinophthalone Technical
 1-(2-Chloro-5-sulfophenyl)-3-methyl-5-pyrazolone Technical
 (4-Chloro-o-tolylmercapto)acetic acid Technical
 2-Chloro-p-xylene Technical
 Chrysazin Technical
 Cleve's Acid 1,6 Technical
 Cleve's Acid 1,7 Technical
 Cleve's Acid Mixed Technical
 Copper phthalocyanine Technical
 Copper phthalocyanine, semichloro Technical
 Copper tetra(4)aminophthalocyanine Technical
 Copper tetra(4)nitrophthalocyanine Technical
 Cresidine Technical
 8-Cyano-1-naphthalenesulfonic acid, sodium salt Technical
 Dehydrothio-p-toluidine Technical
 Dehydrothio-p-toluidinesulfonic acid Technical
 1,4-Diaminoanthraquinone Technical
 1,5-Diaminoanthraquinone Technical
 2,6-Diaminoanthraquinone Technical
 1,5 (and 1,8)-Diaminoanthraquinone Technical
 4,8-Diaminoanthrarufin Technical
 1,4-Diamino-2,3-dichloroanthraquinone Technical
 1,4-Diamino-2,3-dihydroanthraquinone Technical
 3,6-Diamino-2,7-dimethylacridine Technical
 3,6-Diamino-2,7-dimethylacridine sulfate Technical
 4,4'-Diamino-2,2'-stilbenedisulfonic acid Technical
 o-Dianisidine Technical
 1,5-Dibenzamidoanthraquinone Technical
 4,5'-Dibenzamido-1,1'-iminodanthraquinone Technical
 N,N-Dibenzylaniline Technical
 3,9-Dibromo-7H-benz(de)anthracen-7-one Technical
 Dibromo-3,16-pyranthrenedione Technical
 2,5-Dichloroaniline Technical
 3,4-Dichloroaniline Technical
 2,5-Dichloroaniline-4-sulfonic acid Technical
 1,5-Dichloroanthraquinone Technical
 1,8-Dichloroanthraquinone Technical
 1,5(and 1,8)-Dichloroanthraquinone Technical
 2,6-Dichlorobenzal chloride Technical
 N,N'-(2,5-Dichloro-3,6-dioxo-p-phenylene)bis(6-(2(3H)-oxo-5-benzimidazolylamino)metanilic acid) Technical
 2,5-Dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)benzenesulfonic acid Technical
 2,6-Dichloro-4-nitroaniline Technical
 1,4-Dichloro-2-nitrobenzene Technical

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

3,4-Dichloronitrobenzene Technical
 2,6-Dichlorotoluene Technical
 2-Diethylaminoethyl methacrylate MS Technical
 N,N-Diethyl-m-aminophenol Technical
 N,N-Diethylaniline Technical
 N,N-Diethylcyclohexylamine Technical
 N,N-Diethylmetanilic acid, sodium salt Technical
 N,N-Diethyl-1-naphthylamine Technical
 N,N-Diethyl-m-toluidine Technical
 2,3-Dihydro-1,4-bis(methylamino)anthraquinone Technical
 2,3-Dihydroquinizarin Technical
 Dihydroxyviolanthrone Technical
 1,3-Dimethoxybenzene Technical
 N,N-Dimethylaniline Technical
 2,2'-Dimethyl-1,1'-bianthraquinone Technical
 N,N-Dimethyl-m-toluidine Technical
 m-Dinitrobenzene 89° Technical
 Dinitro-(3,3'-bi-7H-benz(de)anthracene)-7,7'-dione Technical
 3,5-Dinitrobenzoic acid Technical
 2,4-Dinitrochlorobenzene Technical
 Dinitrochrysazin Technical
 4,5-Dinitro-2,7-chrysazindisulfonic acid, disodium salt Technical
 2,4-Dinitro-4'-hydroxydiphenylamine Technical
 2,4-Dinitrophenol Technical
 4,4'-Dinitro-2,2'-stilbenedisulfonic acid, disodium salt Technical
 2,4-Dinitrotoluene Technical
 Dinitrotoluene Mixture Technical
 1,4-Di-p-toluidinoanthraquinone Technical
 Di-o-tolylguanidine Technical
 Di-o-tolylthiourea Technical
 6-Ethoxy-2-mercaptobenzothiazole Technical
 2-Ethoxy-1-naphthylamine Technical
 2-Ethoxy-1-nitronaphthalene Technical
 3-Ethylamino-p-cresol Technical
 3-Ethylamino-p-toluenesulfonic acid Technical
 N-Ethylaniline Technical
 alpha-(N-Ethylanilino)-m-toluenesulfonic acid Technical
 N-Ethyl-N-benzylaniline Technical
 N-Ethyl-N-benzyl-m-toluidine Technical
 N-Ethyl-alpha-naphthylamine Technical
 N-Ethyl-m-toluidine Technical
 N-Ethyl-o-toluidine Technical
 alpha-(N-Ethyl-m-toluidino)-m-toluenesulfonic acid Technical
 F Salt Technical
 Fluoroalcohols
 Fluorocarbons
 Formanilide Technical
 Formaniline Technical
 o-Formotoluidide Technical
 G Salt Technical
 Gamma Acid Technical
 H Acid Technical
 Homophthalic acid Technical
 1-Hydroxy-4-(alpha-hydroxy-m-toluidino)anthraquinone Technical

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

N-(7-Hydroxy-1-naphthyl)acetamide Technical
1-Hydroxy-4-p-toluidinoanthraquinone Technical
1,1'-Iminobis(4-aminoanthraquinone) Technical
1,1'-Iminobis(4-benzamidoanthraquinone) Technical
1,1'-Iminobis(5-benzamidoanthraquinone) Technical
1,1'-Iminobis(4-nitroanthraquinone) Technical
1,1'-Iminodianthraquinone Technical
1,3-Isoquinolinediol Technical
Isoviolanthrone Technical
J Acid Technical
J Acid Urea Technical
Koch Acid Technical
Laurent's Acid Technical
1-Methoxyanthraquinone Technical
1-Methoxy-4-nitroanthraquinone Technical
1-Methylaminoanthraquinone Technical
N-Methylaniline Technical
3-(N-Methylanilino)propionitrile Technical
1-(3-Methyl-2-anthraquinonylamino)-5-(7-oxo-7H-benz(de)anthracen-3-ylamino)anthraquinone Technical
N-Methyleyclohexylamine Technical
Methylenebis(2-chloroaniline) Technical
p,p'-Methylenebis(N,N-dimethylaniline) Technical
N-Methylglucamine Technical
4-Methyl-2-nitroanisole Technical
2-Methyl-1-nitroanthraquinone Technical
2,7-Naphthalenedisulfonic acid, disodium salt Technical
o-Naphthionic acid Technical
alpha-Naphthol Technical
Naphthostyryl Technical
alpha-Naphthylamine Technical
(2-Naphthylmercapto)acetic acid Technical
Nevile & Winther's Acid Technical
2'-Nitro-p-acetanisidide Technical
3-Nitro-4-aminoanisole Technical
5-Nitro-2-aminoanisole Technical
4-Nitro-2-aminophenol Technical
4-Nitro-2-aminotoluene Technical
5-Nitro-2-aminotoluene Technical
m-Nitroaniline Technical
4-Nitroaniline-2-sulfonic acid Technical
o-Nitroanisole Technical
p-Nitroanisole Technical
1-Nitro-2-anthraquinonecarboxylic acid Technical
m-Nitrobenzaldehyde Technical
6-(p-(p-Nitrobenzamido)benzamido)-1-naphthol-3-sulfonic acid Technical
6-(p-Nitrobenzamido)-1-naphthol-3-sulfonic acid Technical
5-Nitro-2(3H)-benzimidazolone Technical
p-Nitrobenzoic acid Technical
4-Nitro-4-biphenylcarboxylic acid, sodium salt Technical
o-Nitrochlorobenzene Technical
p-Nitrochlorobenzene Technical
2-Nitro-p-cresol Technical
m-Nitroformanilide Technical
alpha-Nitronaphthalene Technical

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

7(and 8)-Nitronaphth(1,2)-oxadiazole-5-sulfonic acid Technical
p-Nitrooxanilic acid Technical
p-Nitrophenetole Technical
o-Nitrophenol Technical
p-Nitrophenol Technical
4-Nitro-o-phenylenediamine Technical
1-(m-Nitrophenyl)-3-methyl-5-pyrazolone Technical
1-(m-Nitrophenyl)-5-Oxo-2-pyrazoline-3-carboxylic acid Technical
4-Nitrophthalimide Technical
p-Nitrosodium phenolate Technical
p-Nitrosophenol Technical
m-Nitrotoluene Technical
o-Nitrotoluene Technical
p-Nitrotoluene Technical
Nitrotoluenes Mixed o-m-p Technical
4-Nitrotoluene-2-sulfonic acid Technical
N-Oxalyl-m-phenylenediamine Technical
N-Oxalyl-p-phenylenediamine Technical
6-Oxo-6H-anthr(9,1)isothiazole-3-carboxylic acid Technical
1-(7-Oxo-7H-benz(de)anthracen-3-ylamino)anthraquinone Technical
1,1'-(7-Oxo-7H-benz(de)anthracen-3,9-ylenediimino)dianthraquinone Technical
Pentachlorobenzenethiol Technical
Peri Acid Technical
p-Phenetidine Technical
m-Phenylenediamine Technical
1,3-Phenylenediamine-4-sulfonic acid Technical
N-Phenyl Gamma Acid Technical
N-Phenylglycine, potassium(and sodium) salt Technical
2,2'-Phenyliminodiethanol Technical
N-Phenyl J Acid Technical
1-Phenyl-3-methyl-5-pyrazolone Technical
N-Phenyl-alpha-naphthylamine Technical
N-Phenyl-beta-naphthylamine Technical
N-Phenyl Peri Acid Technical
Phthalimide Technical
Picric acid NF
Picric acid Technical
Piperidine Technical
Primuline Fusion Mass 220 Technical
Primuline Fusion Mass 240 Technical
Primuline Fusion Mass 270 Technical
Quinaldine Technical
Quinizarin Technical
2,4-Quinolinediol Technical
Quinophthalone Technical
2R Acid Technical
Rhoduline Acid Technical
Sarcosine Technical
Sodium metanilate Technical
Sodium naphthionate Technical
Sodium pieramate Technical
o-(p-Sulfobenzoyl)benzoic acid, disodium salt Technical
1-(p-Sulfophenyl)-3-methyl-5-pyrazolone Technical
Sulfur tetrafluoride Technical

ORGANIC CHEMICALS DEPARTMENT

DYES AND CHEMICALS DIVISION

Tetrabutyl titanate Technical
 1,4,5,8-Tetrachloroanthraquinone Technical
 Tetraethylthiuram disulfide Technical
 Tetraisopropyl titanate Technical
 1,4,5,8-Tetrakis(1-anthraquinonylamino)anthraquinone Technical
 Tetrakis(2-ethylhexyl) titanate Technical
 Tetrastearyl titanate Technical
 3,3'-Thiodi(7H-benz(de)anthracen-7-one) Technical
 Thio-beta-naphthol Technical
 o-Tolidine base Technical
 o-Tolidine hydrochloride Technical
 m-Toluidine Technical
 o-Toluidine Technical
 p-Toluidine Technical
 o-(p-Toluoxy)benzoic acid Technical
 2,4-Tolylenediamine Technical
 2,4-Tolylenediamine-5-sulfonic acid Technical
 1,3,5-Triethylbenzene Technical
 1,3,3-Trimethyl $\Delta^{2,3}$ -indolineacetaldehyde Technical
 1,3,3-Trimethyl-2-methyleneindoline Technical
 Vinyl fluoride MS Technical
 Violanthrone Technical
 2,4-Xylidine Technical
 2,5-Xylidine Technical
 Xylidines Mixed o-m-p Technical

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ORGANIC CHEMICALS DEPARTMENT

"FREON" PRODUCTS DIVISION

GENERAL OFFICE: Nemours Building, Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

DISTRICT OFFICES:

Chicago 3, Illinois
New York 13, New York
Palo Alto, California

7 South Dearborn Street
40 Worth Street
701 Welch Road

ANdover 3-7000
COrtlandt 7-3965
DAvenport 6-2840

PLANTS:

Carneys Point, New Jersey
Louisville, Kentucky

East Chicago, Indiana
Antioch, California

PRODUCTS

"Freon" fluorinated hydrocarbon products are readily available for use in refrigeration and air conditioning equipment as original and replacement charges; for aerosol propellant uses; for blowing agents; for solvents; and for miscellaneous uses. Those interested are requested to contact our Wilmington or nearest district office for full information regarding the products' usage and nearest stocking points.

"Freon" fluorinated hydrocarbons are clear and water white; odors of vapors are mild and somewhat ethereal but disappear when mixed with air; nonirritating to the eyes, nose, throat, lungs and skin; nontoxic, nonflammable, non-explosive, noncorrosive, stable and inert.

"Freon-11" or "F-11" Refrigerant, Propellant, Blowing Agent and Solvent—Trichloromonofluoromethane—CCl₃F: B. P. 74.8°F. (23.8°C.) at 760 mm. USE: As a refrigerant in industrial and commercial air conditioning systems; also, in industrial process water and brine cooling to -40°F. (-40°C.) employing single or multistage centrifugal type compressors of 100 tons refrigeration capacity and larger. As brine refrigerant in indirect low temperature systems to -150°F. (-101.1°C.). As blowing agent for rigid and resilient plastic foams. Solutions of "Freon-11" and "Freon-12" are used as propellants for a wide variety of aerosol products. Can be tailored to individual pressure requirements from 1 to 69 lb./sq. in. gauge at 70°F. (21.1°C.). CONTAINERS: 10-, 25- and 150-lb. cylinders; 100-, 200- and 650-lb. drums; 2,200-lb. tanks, tank trailers, tank cars.

"Freon-12" or "F-12" Refrigerant, Propellant and Blowing Agent—Dichlorodifluoromethane—CCl₂F₂: B. P. -21.6°F. (-29.8°C.) at 760 mm. USE: As a refrigerant in both direct and indirect industrial, commercial, household and automotive air conditioning systems; also, in household refrigerators, ice cream cabinets, frozen food cabinets, food locker plants, water coolers, etc., employing reciprocating type compressors ranging in size from fractional to 800 horsepower. "Freon-12" is also used in household refrigerating systems, ice cream and frozen food cabinets employing rotary vane type compressors. "Freon-12" is used in industrial process water and brine cooling to -110°F. (-78.9°C.) employing multistage centrifugal type compressors in cascade of 100 tons refrigeration capacity and larger. "Freon-12" is used as a propellant for

high pressure aerosols such as those containing insecticides. Also for surface-coating products such as metallic and pigmented paints and lacquers. Solutions of "Freon-12" with other "Freon" products are used as aerosol propellants for a wide variety of products; also as low temperature solvents. As blowing agent for rigid and resilient plastic foams. PRESSURE—70 lb./sq. in. gauge at 70°F. (21.1°C.). CONTAINERS: 10-, 25-, 50- and 145-lb. cylinders; 2,000-lb. tanks, tank trailers and tank cars.

"Freon-13" or "F-13" Refrigerant—Monochlorotrifluoromethane—CClF₃: B. P. -114.6°F. (-81.4°C.) at 760 mm. USE: As a refrigerant in both direct and indirect industrial extremely low temperature cascade systems ranging in size from fractional to 100 horsepower, employing reciprocating or rotary compressors; aircraft environmental test chambers; shrink fit, toughening and hardening of metals; pharmaceutical processing. PRESSURE—459 lb./sq. in. gauge at 70°F. (21.1°C.). CONTAINERS: 5-, 9-, 23- and 80-lb. cylinders.

"Freon-13B1" or "F-13B1" Refrigerant and "Freon" FE-1301 Fire Extinguishing Agent—Monobromotrifluoromethane—CBrF₃: B. P. -72.0°F. (-57.8°C.) at 760 mm. USE: As a refrigerant in both direct and indirect industrial low temperature cascade or multiple compression systems ranging in size from fractional to 100 horsepower, employing reciprocating or rotary compressors; aircraft environmental test chambers; shrink fit, toughening and hardening of metals; pharmaceutical processing. As a fire extinguishing agent. PRESSURE—199 lb./sq. in. gauge at 70°F. (21.1°C.). CONTAINERS: 6-, 10-, 28- and 100-lb. cylinders and 2,000-lb. tanks.

"Freon-14" or "F-14" Propellant and Refrigerant Gas—Tetrafluoromethane—CF₄: B. P. -198.4°F. (-128.0°C.) at 760 mm. CRITICAL TEMPERATURE: -49.9°F. (-45.5°C.). CRITICAL PRESSURE: 542 lb./sq. in. absolute. USE: As a refrigerant in extremely low temperature cascade systems for environmental testing, metal conditioning, pharmaceutical processing, freezing and storage of biological products and other cryogenic applications; direct coolant for infrared detector cells; an inert propellant gas to operate satellite guidance and stabilization rockets. CONTAINERS: 5-, 15- and 50-lb. net weight cylinders as a compressed gas.

ORGANIC CHEMICALS DEPARTMENT

"FREON" PRODUCTS DIVISION

"Freon-22" or "F-22" Refrigerant, Plastics Intermediate, Propellant and Solvent—Monochlorodifluoromethane— CHClF_2 : B. P. -41.4°F . (-40.8°C .) at 760 mm. USE: As a refrigerant in industrial and commercial low temperature refrigerating systems employing reciprocating type compressors; for low temperature refrigerating systems employing centrifugal type compressors. Solutions of "Freon-22" with "Freon-11" and "Freon-12" are used as propellents for aerosol products requiring special solvent and pressure qualities. Chemical intermediate for plastics manufacture. Used as a low temperature solvent in investment casting process for preparation of ceramic molds. PRESSURE—Approximately 122 lb./sq. in. gauge at 70°F . (21.1°C .). CONTAINERS: 9-, 22-, 25-, 50- and 125-lb. cylinders and 1,750-lb. tanks, tank trailers and tank cars.

"Freon-113" or "F-113" Refrigerant, Plastics Intermediate, Solvent and Propellant—Trichlorotrifluoroethane— $\text{CCl}_2\text{FCClF}_2$: B. P. 117.6°F . (47.6°C .) at 760 mm. USE: As a refrigerant in industrial and commercial air conditioning systems; also, in industrial process water and brine cooling to 0°F . (-17.8°C .) employing four or more stage centrifugal type compressors of 25 tons refrigeration capacity and larger. "Freon-113" is used with other "Freon" compounds as a propellant for aerosol products. As blowing agent for rigid and resilient plastic foams. As a chemical intermediate for plastics manufacture. CONTAINERS: 10-, 25- and 150-lb. cylinders; 100-, 150-, 200- and 690-lb. drums; and 2,200-lb. tanks, tank trailers and tank cars.

"Freon-114" or "F-114" Propellant and Refrigerant—Dichlorotetrafluoroethane— $\text{CClF}_2\text{CClF}_2$: B. P. 38.4°F . (3.6°C .) at 760 mm. USE: As a refrigerant in fractional horsepower household refrigerating systems and drinking water coolers employing rotary vane type compressors; also, in indirect industrial and commercial air conditioning systems and in industrial process water and brine cooling to -70°F . (-56.7°C .) employing multistage centrifugal type compressors of 100 tons refrigeration capacity and larger. As high stability heat transfer medium. Solutions of "Freon-114" and "Freon-12" are used as propellents for aerosol products where active ingredients require extreme stability—cosmetics, for example. As blowing agent for rigid and resilient plastic foams. Provide pressure from 12 to 69 lb./sq. in. gauge at 70°F . (21.1°C .). CONTAINERS: 25- and 150-lb. cylinders and 2,200-lb. tanks, tank cars.

"Freon" C-318 Propellant and Dielectric Gas—Octafluorocyclobutane—Cyclic (CF_2)₂: B.P. 21.1°F . (-6.0°C .) at 760 mm. USE: Food grade as propellant for aerosol food products. Tasteless and odorless. PRESSURE: 25 psig. at 70°F . (21.1°C .). Mixture with nitrous oxide as propellant for whipped cream dessert topping, salad dressing and other pressurized food products. As propellant for flavoring extracts, spices and other food additives. As propellant for inhalation pharmaceutical products. Technical grade as dielectric coolant and heat transfer agent for transformers, cables, waveguides, and electronic devices. Dielectric strength 100 KV per inch at 760 mm. Service temperature at least 250°C . CONTAINERS: 14-, 28-, and 165-lb. cylinders and 2,200-lb. tanks.

"Freon" BF Solvent—Tetrachlorodifluoroethane— $\text{CCl}_2\text{F}_2\text{CCl}_2\text{F}_2$: B. P. 199.0°F . (92.78°C .) at 760 mm. F. P. 79°F . (26.11°C .). USE: As a solvent. Also, in mixtures with "Freon" MF and "Freon" TF to provide specific boiling points and properties. As a flash point retarder for hydrocarbons and some higher boiling solvents. CONTAINERS: 10- and 20-gallon nonreturnable drums, tank trailers and tank cars.

"Freon" MF Solvent—Trichloromonofluoromethane— CCl_3F : B. P. 74.8°F . (23.8°C .) at 760 mm. F. P. -168°F . (-111°C .). USE: As a cleaner for hermetic motor compressors, oxygen storage tanks, etc. In blends as a cleaner for motion picture and television film, lithographic plates, typewriters, etc. As a flash point retarder for flammable solvents. Also used as an inert, noncorrosive brine and low temperature heat transfer fluid such as in the cold treatment of brazed stainless steels. CONTAINERS: 10-, 20- and 55-gallon nonreturnable drums, tank trailers and tank cars.

"Freon" TF Solvent—Trichlorotrifluoroethane— $\text{CCl}_2\text{FCClF}_2$: B. P. 117.6°F . (47.6°C .) at 760 mm. F. P. -31°F . (-35°C .). USE: As a solvent; for a cold immersion cleaning, as a vapor degreasing solvent, for ultrasonic or combination ultrasonic-vapor degreasing cleaning. Used as a cleaner for precision equipment such as gyroscopes, for mechanical and electrical controls, precision instruments and gauges, motors and generators, electrical and electronic equipment and assemblies, motion picture film, television and magnetic tapes, printed circuits, and as a flash point retarder in blends. Also used in extraction processes. CONTAINERS: 10-, 20- and 55-gallon nonreturnable drums, tank trailers and tank cars.

1,1-Difluoroethane—Ethylidene Fluoride— CH_3CHF_2 : B. P. -12.5°F . (-24.8°C .) at 760 mm. USE: As a refrigerant, aerosol propellant and chemical intermediate. CONTAINERS: 8-, 16- and 95-lb. cylinders and 1,300-lb. tanks and tank trailers.

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ORGANIC CHEMICALS DEPARTMENT

PETROLEUM CHEMICALS DIVISION

GENERAL OFFICE: Nemours Building Wilmington 98, Delaware

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PRospect 4-1000

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705 Bank of Commerce Building
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Suite 550, 45 Rockefeller Plaza
3 Penn Center Plaza
Room 751, 1 Gateway Center
Room 626, 111 Sutter Street
Room 215, 4003 Aurora Avenue
1811 South Baltimore Avenue

Randolph 6-8630

MAin 1-3422
CApitol 5-1151
MAdison 4-1354
COlumbus 5-2342
LOcust 8-3531
ATLantic 1-2933
EXbrook 2-1934
MEIrose 2-6977
LUther 3-8581

PLANTS:

Antioch, California
Carneys Point, New Jersey

SHIPPING POINTS:

TETRAETHYL LEAD COMPOUNDS

Amarillo, Texas (1)
Antioch, California (3)
Beaumont, Texas (2)
Bellevue, Ohio (1)
Carneys Point, New Jersey (3)
Chaison, Texas (1)
Chalmette, Louisiana (1)
Corpus Christi, Texas (1)
Cushing, Oklahoma (1)
Cut Bank, Montana (1)
East Chicago, Indiana (1)
East St. Louis, Illinois (1)
El Monte, California (2)
Ferndale, Washington (2)
Fort Worth, Texas (1)

Guthrie, Oklahoma (1)
Heavener, Oklahoma (1)
Houston, Texas (1)
Kansas City, Missouri (1)
North Bend (Renova),
Pennsylvania (1)
Philadelphia, Pennsylvania (1)
Rosemont, Minnesota (1)
Roxana, Illinois (1)
Salt Lake City, Utah (1)
Texas City, Texas (1)
Toledo, Ohio (1)
Torrance, California (1)
Westlake, Louisiana (1)
Wilmington, Delaware (1)

ADDITIVES

Billings, Montana
Carneys Point, New Jersey
Chicago, Illinois
La Porte, Texas
Kansas City, Missouri
Los Angeles, California
Mt. Vernon, Washington

TETRAMETHYL LEAD COMPOUND

"TETRAMIX" ANTIKNOCK COMPOUND

Carneys Point, New Jersey (3)

(1) Tank Cars (2) Tank Cars and Tank Trucks (3) Tank Cars, Tank Trucks, and Drums

PRODUCTS

DMF Antistall Additive—Dimethyl Formamide Technical—HCON(CH₃)₂: Colorless liquid, readily soluble in gasoline. USE: In concentrations up to 0.1% to prevent engine stalling during cool humid weather conditions. CONTAINERS: 5-, 55-gal. drums, tank trucks, tank cars.

Fuel Oil Additive No. 2: A viscous, light amber, ashless liquid. Miscible in No. 2 fuel oil in all proportions. Sp. Gr. 0.90. USE: At concentrations of 0.003 to 0.02% by weight in household heating and diesel oils to decrease the rate of insoluble residue formation by its antioxidant effect and to reduce filter clogging by its dispersant action. It also has rust preventive properties. CONTAINERS: 55-gal. (375-lb.) steel drums.

Fuel Oil Additive No. 7: A viscous, light amber, ashless liquid. Miscible in No. 2 fuel oil in all proportions. Sp. Gr. 0.86. USE: At concentrations of 0.003 to 0.02% by weight in household heating and diesel oils to decrease the rate of insoluble residue formation by its stabilizing effect and to reduce filter clogging by its dispersant action. CONTAINERS: 55-gal. (375-lb.) steel drums.

Fuel Oil Additive No. 208: A mixture of Fuel Oil Additive No. 2 (92 parts) and Metal Deactivator (8 parts). USE: Same as Fuel Oil Additive No. 2. CONTAINERS: 55-gal. (375-lb.) steel drums.

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Fuel Oil Additive No. 212: A mixture of Fuel Oil Additive No. 2 (88 parts) and Metal Deactivator (12 parts). **USE:** Same as Fuel Oil Additive No. 2. **CONTAINERS:** 55-gal. (375-lb.) steel drums.

Gasoline Antioxidant No. 5: A solution of N-n-butyl-p-aminophenol in alcohols having the following weight composition:

- 50% N-n-butyl-p-aminophenol $\text{HOC}_6\text{H}_4\text{NHC}_4\text{H}_9$
- 30% Anhydrous isopropanol $(\text{CH}_3)_2\text{CHOH}$
- 20% Anhydrous methanol CH_3OH

The solution is readily soluble in gasoline in normal use concentrations. The use of benzene or other aromatic solvent is recommended for preparation of concentrated solutions. Sp. Gr. 0.90. **USE:** For reducing the formation of gum and precipitation of lead in gasoline. Concentration required 0.002 to 0.01% by weight. **CONTAINERS:** 55-gal. (400-lb.) steel drums.

Gasoline Antioxidant No. 22: $\text{N,N}'\text{-Di}(\text{sec-butyl})\text{-p-phenylenediamine}$ $[\text{C}_6\text{H}_4[\text{NHCH}(\text{CH}_2)_2\text{C}_4\text{H}_9]]_2$ containing no solvent. A mobile liquid readily soluble in gasoline in all proportions and at all operating temperatures; Sp. Gr. 0.94. **USE:** For retarding the formation of gum and precipitation of lead in gasoline. Concentration required 0.001 to 0.005% by weight. **CONTAINERS:** 55-gal. (425-lb.) steel drums.

Antioxidant No. 29—2,6-Di-tertiary butyl-4-methyl phenol— $\text{CH}_3\text{C}_6\text{H}_2[\text{C}(\text{CH}_3)_3]_2\text{OH}$: A light colored, finely divided solid; non-coloring and readily soluble in oils; Sp. Gr. 1.04. **USE:** In turbine, transformer and hydraulic oils, waxes and greases to retard oxidation and in gasoline to reduce the formation of gum and precipitation of lead. Concentration required 0.003 to 0.015% by weight. **CONTAINERS:** 100-lb. fiber drums.

Petroleum Dyes: Hydrocarbon soluble dyes for imparting distinctive colors to gasoline and other petroleum products. **CONTAINERS:** 100-lb. fiber drums.

- Oil Blue A —Essentially 1,4-Di(isopropylamino)-anthraquinone
- Oil Bronze —A blend of Oil Red and Oil Orange
- Oil Orange —Essentially Phenylazo-2-naphthol
- Oil Red —Essentially Methyl derivatives of azobenzene-4-azo-2-naphthol
- Oil Yellow N—Essentially p-Dimethylaminoazobenzene

Lube Oil Additive 564: Solution of methacrylate polymers containing basic nitrogen in light neutral oil. Density 7.5 lb. per gal. **USE:** To provide detergency for motor oils, particularly under low-temperature, low-power, stop-and-go driving conditions, and to improve viscosity index. Concentration required averages 2% and varies somewhat with the properties of the base oil and supplementary additives used. **CONTAINERS:** 55-gal. (375-lb. net) drums and 4,000-, 6,000- and 8,000-gal. tank cars.

Metal Deactivator: A 78% solution of active ingredient in an aromatic solvent. The active ingredient is principally $\text{N,N}'\text{-disalicylidene-1,2-propanediamine}$ $[\text{HOC}_6\text{H}_4\text{CHNCH}_2\text{CH}(\text{CH}_3)\text{NHC}_6\text{H}_4\text{OH}]$. Normally a dark amber liquid; may crystallize during prolonged storage. Readily soluble in gasolines and other hydrocarbon oils above 25°C. Miscible with Gasoline Antioxidants and Fuel Oil Additive No. 2. Sp. Gr. 1.08. **USE:** For improving storage and color stability of petroleum distillates containing dissolved copper. It is particularly useful as an adjunct to Gasoline Antioxidants and Fuel Oil Additive No. 2. Concentration required 0.0002 to 0.002% by weight. **CONTAINERS:** 30-gal. (260-lb.) steel drums.

Metal Deactivator No. 2: A 49% solution of the same active ingredient as in Metal Deactivator but having better resistance to crystallization. **USE:** Same as Metal Deactivator. **CONTAINERS:** 30-gal. (250-lb.) steel drums.

Metal Deactivator No. 3: A 65% solution of the same active ingredient as in Metal Deactivator but having more favorable crystallization properties. **USE:** Same as Metal Deactivator. **CONTAINERS:** 30-gal. (250-lb.) steel drums.

Metal Suppressor: Counteracts the pro-oxidant effect of copper or copper alloys and thereby increases storage stability of gasoline and fuel oil exposed to such surfaces. An amber colored liquid containing 50% active ingredient dissolved in methanol and isopropanol.

"Ortholeum" 162 Lubricant Assistant: A mixture of mono- and di-alkyl phosphates (RH_2PO_4 and R_2HPO_4). Light brown viscous liquid; freezing point about 15°C.; Sp. Gr. 0.99; miscible with oil in all proportions. **USE:** In oils to improve film strength and to impart rust preventive properties. Concentrations vary with nature of applications. **CONTAINERS:** 55-gal. (425-lb.) steel drums.

"Ortholeum" 300 Grease Stabilizer: Mixture of complex aromatic amines providing a combination of an antioxidant and a metal deactivator action. It is a tan-colored, flaked product. **USE:** As a stabilizer for greases. Concentration required is usually 0.1 to 1.0% by weight. **CONTAINERS:** 175-lb. fiber drums.

Phenyl-alpha-naphthylamine— $\text{C}_{10}\text{H}_7\text{NHC}_6\text{H}_5$: Lemon-yellow lumps and irregular pellets up to 1/2 in. diameter; Sp. Gr. 1.17. Normal concentration—up to 0.5% in oils, up to 1.0% in greases. **USE:** As a stabilizer for greases, transformer oils and turbine oils.

Phenyl-beta-naphthylamine— $\text{C}_{10}\text{H}_7\text{NHC}_6\text{H}_5$: A yellow-gray powder; Sp. Gr. 1.18. **USE:** As a stabilizer for greases and lubricating oils. Concentration—up to 0.5% in greases; up to limit of solubilities in oils. **CONTAINERS:** 51-gal. (160-lb.) fiber drums.

Rust Preventive No. 2: 80% Active ingredient in kerosene. A straw colored liquid. **USE:** As an antirust and surface active antistalling agent in petroleum distillates at concentrations up to 0.01%. **CONTAINERS:** 55-gal. (400-lb.) steel drums, tank cars.

Tetraethyl Lead Compound— $(\text{C}_2\text{H}_5)_4\text{Pb}$ —Aviation Mix: A liquid antiknock compound the principal component of which is tetraethyl lead; Sp. Gr. 1.74. **USE:** In concentrations up to 4.6 cc. TEL per gal. as an antiknock agent for aviation gasolines. **CONTAINERS:** Liter cans, 10- and 55-gal. drums, 3,000- and 6,000-gal. tank cars.

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Tetraethyl Lead Compound— $(C_2H_5)_4Pb$ —Aviation Mix—Dilute Solution: A liquid solution of Aviation Mix, a mixture of 70% xylene and 30% n-heptane; Sp. Gr. 0.96. USE: For TEL blending of gasolines used in laboratory engine testing. The dilute solution allows greater accuracy in adding small volumes of TEL. CONTAINERS: Liter cans.

Tetraethyl Lead Compound— $(C_2H_5)_4Pb$ —Motor Mix: A liquid antiknock compound the principal component of which is tetraethyl lead; Sp. Gr. 1.59. USE: In concentrations up to 4 cc. TEL per gal. as an antiknock agent for motor gasolines. CONTAINERS: Liter cans, 10- and 55-gal. drums, 3,000- and 6,000-gal. tank cars.

Tetramethyl Lead Compound— $(CH_3)_4Pb$ —Motor Mix: A liquid antiknock compound the principal component of which is tetramethyl lead; Sp. Gr. 1.586. USE: In concentrations up to 2.05 cc. TML per gal. as an antiknock agent for motor gasolines. CONTAINERS: Liter cans, 10- and 55-gal. drums, 3,000- and 6,000-gal. tank cars.

"Tetramix" Antiknock Compound—Motor Mix: A liquid antiknock compound the active component of which is a redistribution mixture of tetraethyl and tetramethyl lead; Sp. Gr. 1.591. USE: In concentrations up to 2.52 cc. active ingredient per gal. as an antiknock agent for motor gasolines. CONTAINERS: Liter cans, 10- and 55-gal. drums, 3,000- and 6,000-gal. tank cars.

PHOTO PRODUCTS DEPARTMENT

GENERAL OFFICE: Nemours Building Wilmington 98, Delaware

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PRospect 4-1000

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Cleveland 16, Ohio
*Dallas 7, Texas
*Los Angeles 38, California
*New York 11, New York
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Philadelphia (Wynnwood), Pa.

1737 Ellsworth Industrial Drive, N. W.
45 Fourth Avenue
4560 Touhy Avenue, Lincolnwood, Edgebrook Station
20575 Center Ridge Road
1628 Oak Lawn Avenue
7051 Santa Monica Boulevard
248 West 18th Street
40 Worth Street (New York 13)
308 East Lancaster Avenue

SYcamore 4-9581
TWInbrook 9-8300
ORchard 5-5500
EDison 1-0375
Riverside 1-1404
HOLlywood 9-5147
WATkins 4-3100
COrtlandt 7-3966
TRinity 8-2700

*Warehouse Location.

PLANTS:

Parlin, New Jersey

Rochester, New York

Towanda, Pennsylvania

Mail to any of the above locations should be addressed to:

E. I. du Pont de Nemours & Company (Inc.), Photo Products Department

PRODUCTS

CAMERA NEGATIVE FILMS T/A NH 5 Mil Base

Panchromatic Negative Film: A fine grain panchromatic negative film of wide latitude for interior as well as exterior photography. This film may also be used as a reversal duplicating film. Available in 16 mm. Type 914A only.

"Superior" 4 Negative Film: A super-sensitive panchromatic negative film recommended for both interior and exterior use wherever limited illumination levels prevail. Its special sensitivity and fine grain structure permit the use of reduced apertures where increased depth of field is desired in television and theatrical motion picture production. An excellent film for high speed photography. Available in 16 mm. Type 928A and 35 mm. Type 928B.

Rapid Reversal Panchromatic Negative Film: A medium speed panchromatic negative designed especially for rapid reversal processing at temperatures up to 125°F. for use in television newsreel and sports photography. Available in 16 mm. Type 930A only.

High Speed Rapid Reversal Panchromatic Negative Film: A high speed panchromatic negative stock designed especially for rapid reversal processing at temperatures up to 125°F. for use in television newsreel and sports photography. Available in 16 mm. Type 931A and 35 mm. Type 931B (perforated for high speed cameras only).

"Superior" 2 Negative Film: An all purpose panchromatic negative stock for both exterior and interior production work. This film has extremely fine grain, medium speed, and wide latitude. Available in 16 mm. Type 936A and 35 mm. Type 936B.

"Cronar" 4.5 Mil Base

Films for high speed photography, data recording, missile tracking, aerial photography and other non-entertainment uses where thinner, tougher, dimensionally stable, more flexible and longer film lengths are desirable.

"Cronar" High Speed Rapid Processing Negative: Same emulsion as 931 Type. Available in 16 mm. Type 131A, 35 mm. Type 131B, 70 mm. Type 131E, 5.481 in. and 9½ in. widths.

"Cronar" "Superior" 2 Fine Grain Negative: Same emulsion as 936 Type. Available in 16 mm. Type 136A, 35 mm. Type 136B, 70 mm. Type 136E, 5.481 in. and 9½ in. widths.

"Cronar" High Contrast Fine Grain Negative: A fine grain panchromatic negative with high red sensitivity especially designed for instrumentation photography where ground to air and air to ground photographic records are desired. Available in 16 mm. Type 140A, 35 mm. Type 140B, 70 mm. Type 140E, 5.481 in. and 9½ in. widths.

SAFETY DUPLICATING FILMS T/A NH 5 Mil Base

Fine Grain Panchromatic Duplicating Negative Film: An exceptionally fine grain, high resolution emulsion designed specifically for making duplicate negatives. Available in 16 mm. Type 908A, 35 mm. Type 908B, and 35 mm. perforated 32 mm. Type 908D.

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PHOTO PRODUCTS DEPARTMENT

RADIOGRAPHIC PRODUCTS

T/A Plain 5.5 Mil Base

Fine Grain Master Positive Film: A fine grain positive duplicating film which can be processed in normal positive developer. Gammas in the desirable range of 1.50 to 1.60 are obtained at standard release developing times. This film has sufficient speed to permit printing in the same exposure range as fine grain release positive. Reduction of contrast through emulsion manufacturing techniques rather than through use of yellow dye gives this material a decided speed advantage over dyed materials and much greater resistance to scratches and abrasions. Type 828A is excellent for making low contrast TV release prints. Available in 16 mm. Type 828A and 35 mm. Type 828B.

SAFETY DUPLICATING FILMS

"Cronar" Plain 4 Mil Base

"Cronar" Fine Grain Duplicating Positive: Same emulsion as 828 Type. Ideal for applications where medium contrast duplicates are required without sacrificing printing speed. Used for duplicating aerial negatives where dimensional stability is important such as aerial mapping. Available in 16 mm. Type 228A, 35 mm. Type 228B, 70 mm. Type 228E, and 9 $\frac{1}{2}$ in. widths.

SAFETY SOUND RECORDING FILMS

T/A NH 5 Mil Base

Sound Recording Film: A high speed variable area or variable density recording film. Use positive developer for VA and negative developer for VD work. Available in 16 mm. Type 802A and 35 mm. Type 802B.

Fine Grain VA Sound Recording Film: An improved variable area sound recording film combining fine grain and maximum sensitivity. NH base reduces flare. Available in 35 mm. Type 833B.

SAFETY RELEASE POSITIVE FILMS

T/A Plain 5.5 Mil Base

Release Positive High Speed Film: A high speed positive emulsion for special release work where approximately twice regular print positive speed is required. Available in 35 mm. Type 803B.

Fine Grain Release Positive Film: For general release work and dubbing prints which require the optimum of picture and sound quality. Image color is blue-black. Inherent noise level is exceptionally low. Emulsion is very hard, with high scratch resistance and is coated on a base of long wearing quality. Available in 16 mm. Type 825A, 35 mm. Type 825B, and 32 mm. Type 825C.

SAFETY RELEASE POSITIVE FILMS

"Cronar" Plain 4 Mil Base

"Cronar" Fine Grain Release Positive Film: Same emulsion as 825 Type. Especially suited for continuous projection prints where long wear and freedom from brittleness and perforation tearing are important. Also used for oscillograph recording. Available in 16 mm. Type 225A, 35 mm. Type 225B and 70 mm. Type 225E.

SAFETY SPECIAL PURPOSE FILMS

T/A Plain 5.5 Mil Base

Title Stock Film: A high speed emulsion used in title cameras for regular title card and special effect work. Produces the sharply defined images required. Specially perforated to yield maximum steadiness in animation cameras. Available in 35 mm. Type 805B only.

Fine Grain Low Contrast Positive Film: A low contrast, fine grain emulsion designed for photographing either negative or positive images on television monitor tubes. Available in 16 mm. Type 824A and 35 mm. Type 824B.

TV Recording Film: A high speed, low contrast, fine grain emulsion designed for photographing either negative or positive images on television recording tubes. This film is approximately 2 $\frac{1}{2}$ times faster than Type 824 and may also be used as a reversal duplicating stock. Available in 16 mm. Type 834A and in 35 mm. Type 834B.

LEADER STOCKS

T/A 5.5 Mil Base

Safety Black 5s Leader Stock: For daylight loading rolls, also "A" and "B" roll printing leader. Available in 16 mm. Type T13A and in 35 mm. Type T13B.

Safety Exposed Rawstock 5s Leader Stock: For leaders and trailers on motion picture reels and "A" and "B" roll printing inserts. Available in 16 mm. Type T71A and in 35 mm. Type T71B.

"Cronar" Plain 4 Mil Base

"Cronar" Polyester Photographic Film—Safety Plain 4s: For developing machines. Available in 16 mm. Type P40A and in 35 mm. Type P40B.

"Cronar" Plain 7 Mil Base

"Cronar" Polyester Photographic Film—Safety Plain 7s: For developing machines. Available in 16 mm. Type P70A and in 35 mm. Type P70B.

RADIOGRAPHIC PRODUCTS

MEDICAL X-RAY FILMS

Du Pont produces four different x-ray film emulsions for the medical field, each emulsion possessing distinct characteristics to suit it for a special use. Uniformity, abrasion resistance and ability to withstand hot weather processing are inherent in all four emulsions which are coated on blue safety base.

"Xtra-Fast" Film, Type 508: A double coated high speed film with maximum contrast for medical radiography with intensifying screens. Available in all standard sizes. CONTAINERS: Boxes of 25 sheets interleaved, 100 sheets N.I.F. (Non-Interleaved Film), and Thrift Pak.*

"Fluoro-Film" X-ray Film, Type 560: 70 mm. fast blue sensitive film for use with the Fairchild Fluoro-Record Camera in photographing the blue fluorescent screen. Available in 100-ft. rolls only.

*Five 100 sheet N.I.F. boxes/case 8 x 10 in., 10 x 12 in., and 14 x 17 in.
Three 100 sheet N.I.F. boxes/case 11 x 14 in.

PHOTO PRODUCTS DEPARTMENT

"Fluoro-Film" X-ray Film, Type 562: 70 mm. fast green sensitive film for use with the Fairchild Fluoro-Record Camera in photographing the green fluorescent screen. Available in 100-ft. rolls only.

INDUSTRIAL X-RAY FILMS

Three special emulsions are produced for the radiography of materials. All are outstanding for their uniformity, abrasion resistance and ability to withstand hot weather processing.

Screen Film, Type 504: For all types of industrial work where intensifying screens are used. Available in all standard industrial sizes. CONTAINERS: Boxes of 100 sheets N.I.F. (Non-Interleaved Film).

Fine Grain Film, Type 506: For direct exposure or exposure using lead screens. Exceptionally fine grain, with wide exposure adaptability to all x-ray voltages and gamma radiation. Available in all standard industrial sizes. CONTAINERS: 100 sheets N.I.F. (Non-Interleaved Film). Coated on polyester base.

Very Fine Grain Film, Type 510: For direct exposure or exposure using lead screens. It has the finest grain of the Industrial Films and is approximately $\frac{1}{2}$ the speed of Type 506. Especially suited for critical inspection of light metals such as aluminum, magnesium and their alloys. Also used in the 1,000 to 22,000 kv. range. CONTAINERS: Boxes of 100 sheets N.I.F. (Non-Interleaved Film). Coated on polyester base.

Day Pack Films, Types 506, 508 and 510: A 200-ft. roll of 70 mm. x-ray film enclosed in a light-tight paper sleeve to permit handling and use in daylight. 506 and 510 Types coated on polyester base.

DOSIMETER FILMS

Dosimeter Film Packets, Types 544, 552, 558 and 559: Special packets containing two films for measuring radiation dosage. Carried by personnel subject to exposure to hazardous radiation. CONTAINERS: 150 "Pull-A-Tab" packets per box.

Dosimeter Film Packet, Type 553: Same as above but containing three films.

Dosimeter Film Packets, Types 543 and 545: Same as above but containing one film.

DENTAL X-RAY FILMS

Dental x-ray films have blue safety base, wide exposure latitude, antiabrasion coating over the emulsion and positive dot identification. Both single and double coated films come in the exclusive "Pull-A-Tab" packet, designed for easy opening and handling in the darkroom.

Double Coated (D) Film, Type 550: A fast x-ray film coated with emulsion on both sides. CONTAINERS:

150 packets per box, 1 film per packet (code 150 D-1)

150 packets per box, 2 films per packet (code 150 D-2)

RADIOGRAPHIC PRODUCTS

Lightning Fast (LF) Film, Type 555: A very fast, double coated film having the inherent speed necessary for use in the long cone technique. It is also used to advantage with low powered x-ray equipment. CONTAINERS:

150 packets per box, 1 film per packet (code 150 LF-1)

150 packets per box, 2 films per packet (code 150 LF-2)

No. 3 Bitewing Film, Type 557: An x-ray film coated with emulsion on both sides having the same speed as Type 550. For use in recording on one film the coronal two-thirds of both the maxillary and mandibular teeth. CONTAINERS: 25 packets per box, 1 film per packet.

CINE FLUOROGRAPHY FILMS

Cine-Ray: 16 mm. and 35 mm. (Type 936) film for use in cine fluorography.

X-RAY FILM PROCESSING CHEMICALS

Concentrated Chemicals: Liquid concentrated chemicals for processing x-ray films. Developer, replenisher and fixer are each supplied in 1- and 5-qt. bottles to make, respectively, 1 and 5 gal. of solution.

Concentrated Dental Chemicals: Liquid concentrated chemicals for processing dental x-ray films. Developer and fixer are supplied in 24-oz. bottles to make 1 gal. of working solution. Developer and fixer are packaged in mailing unit called Twinpack.

Powdered Chemicals: "Xtra-Fast" developer and replenisher, and single powder fixer for processing x-ray films. Supplied in package sizes to mix 1, 5, 20 and 100 gal. of solution.

STAINLESS INTENSIFYING SCREENS

Hi-Speed: A fast, stainless screen reproducing definition closely comparable to that of Par Speed, for general medical radiography where extra speed is essential; also excellent for low-powered and portable x-ray units.

Par Speed: Standard speed, stainless screen for all general medical radiography.

Lightning Special: A very fast, special purpose screen having highest speed throughout medical kilovoltage range. For use where speed is primary requirement.

Detail: A special purpose screen designed to reproduce the finest detail possible in screen radiography.

Multi-Section Screen Book: A book of seven matched pairs of intensifying screens of different speeds for multi-section radiography.

Industrial: For high speed industrial radiography.

Screen Cleaner: A cleaner specifically formulated for Du Pont Stainless Intensifying Screens. An important bonus benefit for the inhibition of static electricity.

FLUOROSCOPIC SCREENS

Type CB-2: Unique plastic screen for medical and industrial fluoroscopy. Supplied in a wide range of standard and special sizes. Has cleanable surface.

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PHOTO PRODUCTS DEPARTMENT

INDUSTRIAL PRODUCTS

SCREENS FOR MINIATURE RADIOGRAPHY

Type D: Blue fluorescing. Not suited for regular fluoroscopy. Used with special blue sensitive film. Supplied with or without cleanable surface.

Type E-2: Same spectral emission as Type CB-2 for use with special green sensitive film. Cleanable surface. 30 to 35% more brilliant than Type CB-2.

DIFFRACTION FILTERS

For obtaining monochromatic x-radiation in diffraction analysis.

INDUSTRIAL PRODUCTS

INDUSTRIAL AND GRAPHIC ARTS FILMS

"Cronar" Clear Base: A clear polyester film for graphic arts. Available in three types:

- C-41—.004 in. thick, sub-coated on one side. Supplied in rolls only.
- C-42—.004 in. thick, sub-coated on two sides. Supplied in standard sheet sizes.
- C-72—.007 in. thick, sub-coated on two sides. Supplied in standard sheet sizes.

"Cronar" Ortho A Litho Film: A high contrast, orthochromatic litho emulsion coated on .004 in. and .007 in. polyester film base with a nonhalation backing. This film is quick drying, lies flat, etches easily and has wide exposure latitude with high resolving power.

"Cronar" Ortho B Litho Film: A high contrast, orthochromatic litho emulsion coated on .004 in. and .007 in. polyester film base with a non-halation backing. Available in same sizes and package units as "Cronar" Ortho A. Use of "Cronar" Ortho B is especially recommended when hardest halftone dot structure is required.

"Cronar" Ortho M Litho Film: An extremely high contrast orthochromatic film which has incorporated in its structure a unique emulsion and backing surface treatment that greatly minimizes the common contact problems caused by Newton's rings and trapped air bells. Standard .004 in. polyester film base.

Acetate Ortho Litho Film: An extremely high contrast orthochromatic film on an acetate base. The special surfaces on both sides greatly minimize Newton's rings and trapped air problems. It is especially suited for those camera and contact jobs which require intricate stripping, cracking and scribing.

"Cronar" Clear Back Ortho Film: An extremely high contrast orthochromatic film with a low density anti-halation coating designed to permit exposure through the film base. This provides lateral reversal of image directly on camera. The special surfaces on both sides greatly reduce Newton's rings and trapped air problems. Standard .004 in. polyester film base.

"Cronar" Pan Litho Film: A high contrast panchromatic litho emulsion on .004 in. polyester film base, especially formulated for color separation work in photolithography and the graphic arts. It has a nonhalation backing and is available in all standard sizes.

"Cronar" Commercial Film: A blue sensitive emulsion on .007 in. polyester photographic film base. Retouchable surface. Designed especially for making continuous tone negatives and positives. It is also well suited for positives or cancelling masks for color separation techniques.

"Cronar" Masking Film: A fast blue sensitive, medium contrast emulsion on .004 in. polyester film base. Retouchable surface. For use in color separation masking, contact copying and negative duplicating.

"Cronar" Pan Masking Film: A fast panchromatic, medium contrast photographic emulsion on polyester film base. Retouchable surface. Designed particularly for color separation masking and duplicating.

"Cronar" Direct Positive Clear Film: A high contrast, contact speed film especially suited for making duplicate or laterally reversed negatives and positives. It is exposed through amber or yellow sheeting.

"Cronar" Reflection Color Separation Negative Film: A moderately high contrast, continuous tone panchromatic film on .007 in. polyester base. Retouchable surface. For making separation negatives from reflection copy.

"Cronar" Transparency Color Separation Negative Film: A medium contrast panchromatic film on .007 in. polyester base. Retouchable surface. For making separation negatives from color transparencies.

"Cronar" Low Gamma Pan Film: An extremely fast, low contrast continuous-tone film on .007 in. polyester base. Retouchable surface. For making separation negatives in color systems where low density range or low gamma is required.

Rotofilm: A high contrast orthochromatic emulsion used for making etch resists in the gravure industry. It is coated on a clear safety base with nonhalation backing. The base can be later stripped from the emulsion after laydown on plates or cylinders.

Screen Process Film: A camera speed orthochromatic emulsion on a stable supporting base from which it is stripped to become the actual stencil for silk screen printing. Film may be exposed in a copy camera, in an enlarger or by contact. Developing Powder A and Activator B are supplied singly or in 1-gal. and 5-gal. combination units.

"Cronar" Recording Film: A high speed, blue sensitive, medium contrast emulsion on .004 in. polyester photographic film base. Retouchable surface. Designed for use in high speed oscillographic cameras and related photo-recording equipment.

Lino-Flex Photorecording Film: A blue sensitive emulsion on "Cronar" polyester photographic film base for use in oscillographic recording equipment. Supplied in Type B (.003 in. thick base) and Type W (.004 in. thick base).

ENGINEERING REPRODUCTION FILMS

DuPont "Cronaflex" engineering reproduction films are coated on "Cronar" polyester photographic film base. They are extremely durable, flexible, and have a high degree of dimensional stability. "Cronaflex" films handle easily in processing and dry quickly. They lie flat after processing and the special matte surfaces permit sharp, clean pen and pencil lines which will not smear or smudge, yet can be erased easily and cleanly. Three types of "Cronaflex" films are available in sensitized form:

PHOTO PRODUCTS DEPARTMENT

"Cronaflex" Contact Film: A slow speed photographic film on .004 in. and .007 in. "Cronar", for making contact reproductions.

"Cronaflex" Direct Positive Film: A photographic emulsion on .004 in. and .007 in. "Cronar", which will produce positive prints directly from original copy without the need for making intermediate negatives.

"Cronaflex" Projection Film: A fast projection speed, orthochromatic film on .004 in. and .007 in. "Cronar". Ideally suited for making work-size prints from miniaturized negatives. "Cronaflex" Projection Film may also be processed for use as an offset printing plate.

"Cronaflex" Drafting Film: The surface and base of this .004 in. "Cronar" polyester film are made in one complete process to provide a drafting material with superior pencil acceptance, erasability, transparency and tear strength. Supplied in all standard roll and sheet sizes.

"Cronaflex" U.C. Drafting Film: A drafting film with a fine matte surface which has superior ink acceptability. The special surface also readily accepts pencil. Supplied on .004 in. and .007 in. "Cronar" in all standard roll and sheet sizes.

INDUSTRIAL AND GRAPHIC ARTS PAPERS

Micro-Writ: A fast orthochromatic projection paper with high contrast. Especially designed to make prints from microfilm negatives. Supplied in two types:

- B - Standard Weight, Semi-Matte
- W - Extra Thin, Semi-Matte

"Litho" T Photographic Paper: A transparent waterproof stock, nonhalation backed, with a high contrast orthochromatic projection emulsion. It is an economical material for line reproduction work.

"Photo-Writ" Photocopy Paper: A paper producing deep, rich blacks and crisp, clean whites with high contrast for photocopy work. Furnished in rolls spooled to fit standard photocopy machines, "Photo-Writ" is available in four types:

- A - Thin, Semi-Matte
- B - Standard Weight, Semi-Matte
- K - Standard Weight, Semi-Gloss
- W - Extra Thin, Semi-Matte

Lino-Writ 1 Photorecording Paper: A photographic paper for general oscillograph recording. Spooled in sizes to fit all standard recording oscillographs. Supplied in types:

- B - Standard Weight
- W - Extra Thin

Lino-Writ 2 Photorecording Paper: A moderately high speed orthochromatic photographic paper for use in oscillographic recording over a wide range of exposures at low, normal and medium frequencies. Types:

- B - Standard Weight
- W - Extra Thin

TRADE PRODUCTS

Lino-Writ 3 Photorecording Paper: An orthochromatic paper for oscillographic recording at high writing speeds. Spooled to fit all standard recording oscillographs. Supplied in types:

- B - Standard Weight
- W - Ultra Thin

Lino-Writ 4 Photorecording Paper: Fastest, thinnest, whitest of all photorecording papers. Spooled in standard sizes. Ultra thin, all rag base.

Lino-Writ 5 Direct Writing Photorecording Paper: A high speed photorecording paper designed for use in direct writing oscillographs. Exposure is made with light rich in blue. Development is automatic in low density white light.

- B - Standard Weight
- W - Ultra Thin

Seismo-Writ Recording Paper: High contrast and wide latitude with rapid developing and fixing characteristics make this photographic paper suitable for use with field recording machines employed in oil exploration work. Available in sizes to fit all standard seismic recorders. Supplied in types:

- B - Standard Weight
- W - Extra Thin

SPECIAL PRODUCTS

"DH" Dehydrated Photographic Emulsion: Projection speed emulsion supplied in dry form for mixture with water at the point of use. It is designed particularly for photo lofting where large areas which may be sensitized only on location of use. May be used on such surfaces as metal and wood.

TESTED CHEMICAL PREPARATIONS

Prepared developers and fixers for use with industrial photographic products are also available.

TRADE PRODUCTS

SHEET FILMS

"Cronar" Commercial: A fine grain blue sensitive photographic film for general copy and commercial work. It is comparatively slow in speed, clear, of brilliant gradation, and can be handled under bright red safelight.

"Cronar" Arrow Pan: A high speed film with high red sensitivity which gives greatest speed advantage in incandescent light and excellent color correction by daylight and by daylight fluorescent lighting.

"Cronar" High Speed Pan: Combines high speed with balanced color sensitivity. Suitable for all high speed portrait, commercial and press work, but particularly adaptable for electronic flash lighting.

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PHOTO PRODUCTS DEPARTMENT

TRADE PRODUCTS

"Cronar" X-F Pan: A general purpose film possessing medium speed and correctly balanced sensitivity to all colors.

"Cronar" Press: Extremely fast film designed for press photography. Wide exposure and development latitude for optimum response under difficult lighting conditions.

All sheet films are coated on nonhalation "Cronar" base. Du Pont 16-D Film Developer and 16-DR Replenisher are recommended for processing of all portrait films. These are available in packaged form.

PHOTOGRAPHIC PAPERS

Black and White Proof Paper: A developing-out photographic paper with full projection speed supplied on a white rough luster medium weight stock which minimizes retouching, scratches and grain. Widely used for making photo murals as well as portrait proofs, it is available in contrast grades 2 and 3.

"Varigam" Variable Contrast Photographic Paper: Providing in one emulsion complete contrast control, "Varigam" has projection speed but may easily be adapted to contact printing. Exposure to blue light renders a print of hard gradation and exposure to yellow light, a print of soft gradation. A full range of contrast may be obtained by changing the color of the printing light. Blue, yellow and intermediate colored optical plastic filters are available for easy use. "Varigam" is available in nine surfaces:

- A - White Semi-Matte S.W.
- AL - White Semi-Matte Document W.
- B - White Semi-Matte D.W.
- BT - White Semi-Gloss D.W.
- DL - Velvet Grain Natural White Luster D.W.
- DS - Velvet Grain Natural White High Luster D.W.
- R - White Glossy S.W.
- T - White Glossy D.W.
- Y - White Silk Texture D.W.

High Speed "Varigam" Variable Contrast Photographic Paper: Designed especially for the professional photographer, this paper combines the advantages of complete contrast control with exceptionally high projection speed, approximately twice that of regular "Varigam". High Speed "Varigam" is available in eight single and double weight surfaces:

- A - White Semi-Matte S.W.
- AL - White Semi-Matte Document W.
- B - White Semi-Matte D.W.
- BT - White Semi-Gloss D.W.
- DL - Velvet Grain Natural White Luster D.W.
- R - White Glossy S.W.
- T - White Glossy D.W.
- WPS - White Water Resistant Semi-Matte S.W.

"Varilour" Variable Contrast Photographic Paper: A fast projection paper designed for mass production use. The contrast of "Varilour" can be raised or lowered to produce prints of uniform high quality from negatives

which vary widely in contrast. This paper will produce warm black prints and will tone well in conventional direct polysulfide toners as well as in bleach and redevelopment toners. Surfaces available are:

- DL - Velvet Grain Natural White Luster D.W.
- R - White Glossy S.W.
- T - White Glossy D.W.
- Y - White Silk Texture D.W.

"Velour Black" Photographic Projection Paper: An enlarging paper noted for high speed in exposure and remarkable fidelity to negative scale as well as simplicity in handling. "Velour Black" is made in four degrees of contrast for all uses in portrait, commercial, industrial and illustrative photography as well as photofinishing. It is furnished in the following surfaces:

- A - White Semi-Matte S.W. Grades 1, 2, 3, 4
- AL - White Semi-Matte Document W. Grades 2, 3
- B - White Semi-Matte D.W. Grades 1, 2, 3
- BT - White Semi-Gloss D.W. Grades 2, 3
- DL - Velvet Grain Natural White Luster D.W. Grades 1, 2, 3, 4
- DS - Velvet Grain Natural White High Luster D.W. Grades 2, 3
- R - White Glossy S.W. Grades 1, 2, 3, 4
- T - White Glossy D.W. Grades 1, 2, 3, 4
- Y - White Silk Texture D.W. Grades 1, 2, 3

Warmtone Photographic Projection Paper: An enlarging paper which yields images of a warm brown color. Although designed for projection prints, it is adapted easily to contact printing by reducing the intensity of the printing light. Available in six surfaces, double weight only.

- DDL - Natural White Rough Luster D.W.
- DL - Velvet Grain Natural White Luster D.W.
- DLW - Velvet Grain White Luster D.W.
- DS - Velvet Grain Natural White High Luster D.W.
- Y - Natural White Silk Texture D.W.
- ZL - Artweave, Natural White Rough Cloth Texture D.W.

Standard formulas for projection papers are Du Pont 53-D and 55-D Developers obtainable in ready-to-use form. Du Pont 18-F Universal Fixer is recommended.

SPECIAL PRODUCTS

"Adflux" Photographic Film for Transparencies: A transparent safety base film coated on both sides with "Velour Black" photographic projection paper emulsion in which a diffusing medium has been incorporated. Used in making prints for viewing by transmitted light.

"Cronapaque" Print Film: A white semi-opaque film for making prints that can be viewed by either reflected or transmitted light. It has a high speed variable contrast emulsion on .007 in. "Cronar" polyester photographic film base and yields crisp, rich black continuous tone prints from negatives of widely varying contrasts.

PHOTO PRODUCTS DEPARTMENT

Plastic Filters for Use with "Varigam" and "Varilour" Variable Contrast Photographic Papers:

Mounted plastic filters, supplied in one size only, consist of a 2½ in. square black plastic frame with a numbered tab and a 2⅛ in. circular optical plastic filter aperture. Sets of five and ten filters are available, packaged in a red plastic box. A black, molded plastic filter holder which attaches to enlarger lens barrel and a simplified instruction form which contains a filter selection chart are included with the Basic (5-A) and Complete (10-C) sets. Individual mounted filters and unmounted sheets of filter material are also supplied on special order.

S-55X Safelight: An orange-brown color safelight which is satisfactory for all sensitized papers, both enlarging and contact including "Varigam". It combines maximum safety from light fog with maximum eye comfort. Prints viewed by this light during processing show a quality comparable to that under white light inspection.

TESTED CHEMICAL PREPARATIONS

Chemical preparations include developers and fixers for papers and films and "B-B" Developer Additive for blue-black tones and for extending the life of developers. These are available in easy-to-use packages.

LUMINESCENT CHEMICAL PRODUCTS

FLUORESCENT AND PHOSPHORESCENT CHEMICALS

Luminescent Chemicals (Phosphors) are available for:

FOCUSING PLATES FOR ULTRAVIOLET MICROSCOPY: A green fluorescing zinc silicate which responds to 2537 A.U. ultraviolet light, coated on glass.

SCREENS FOR ELECTRON MICROSCOPES

MISCELLANEOUS USES: Also prepared to supply miscellaneous phosphors to meet individual requirements.

LUMINESCENT CHEMICAL PRODUCTS

PRINTING PLATE PRODUCTS

"Dycril" Photopolymer Printing Plates: A photo-sensitive plastic bonded to various metal supports. Exposure to an ultraviolet light source renders exposed areas insoluble to a subsequent mild alkaline washout solution so that a relief image of the exposed pattern remains. Depth of image is dependent on the thickness of the photosensitive plastic layer. There are seven types available:

Type 25 —.008 in. steel backing yielding .010 in. relief depth. Image area of 24 x 28 in. on 28 x 30 in. steel support. Total thickness approximately .025 in.

Type 30 —.012 in. steel backing yielding .012 in. relief depth. Image area of 24 x 28 in. on 28 x 30 in. steel support. Total thickness approximately .030 in.

Type 50 —.012 in. steel backing yielding relief depth of .030 in. Available 18 x 24 in. size. Total thickness approximately .050 in.

Type 60 —.012 in. steel backing yielding relief depth of .040 in. Available 18 x 24 in. size. Total thickness approximately .060 in.

Type 152—.105 in. aluminum backing yielding a relief depth of .040 in. Available 18 x 24 in. size. Total thickness approximately .152 in.

Type 180—.133 in. aluminum backing yielding a relief depth of .040 in. Available 18 x 24 in., and 20 x 24 in. size. Total thickness approximately .180 in.

Type 240—.193 in. aluminum backing yielding a relief depth of .040 in. Available 18 x 24 in. size. Total thickness approximately .240 in.

MISCELLANEOUS PRODUCTS

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PIGMENTS DEPARTMENT

GENERAL OFFICE: Nemours Building Wilmington 98, Delaware

TELEPHONE
PRospect 4-1000

BRANCH OFFICES:

Atlanta 12, Georgia	225 Moore Street, S. E.	Jackson 5-4557
Boston (Malden 48), Massachusetts	359 Washington Street	DAvenport 2-8080
Chicago 6, Illinois	Room 1711, 20 North Wacker Drive	ANdover 3-7000
Cincinnati 6, Ohio	2330 Victory Parkway	AVon 1-2343
Cleveland 20, Ohio	11900 Shaker Boulevard	LOngacre 1-1060
Detroit 35, Michigan	13000 West Seven Mile Road	UNiversity 4-1963
Houston 27, Texas	3202 Wesleyan Avenue	MOhawk 6-0161
New York 1, New York	1027 Empire State Building, 350 Fifth Avenue	LOngacre 3-6400
Pasadena, California	22-25 Meade Building, 325 North Lake Avenue	MURray 1-7431
Philadelphia 3, Pennsylvania	910 Architects Building, 117 South Seventeenth Street	LOcust 6-2080
Portland 9, Oregon	1238 N. W. Glisan Street	CApitol 2-6012
San Francisco 24, California	1485 Bayshore Boulevard	JUNiper 5-9231

PLANTS:

Baltimore, Maryland	Johnsonville, Tennessee
Brevard, North Carolina	Newark, New Jersey
Edge Moor, Delaware	Newport, Delaware
Highland, Florida	Trail Ridge, Florida

WAREHOUSES:

Atlanta, Georgia	Lockland, Ohio
Baltimore, Maryland	Los Angeles, California
Chicago, Illinois	Louisville, Kentucky
Cleveland, Ohio	Malden, Massachusetts
Dallas, Texas	Minneapolis, Minnesota
Detroit, Michigan	Memphis, Tennessee
Edge Moor, Delaware	Newark, New Jersey
Houston, Texas	New Orleans, Louisiana
Indianapolis, Indiana	Newport, Delaware
Jackson, Mississippi	Philadelphia, Pennsylvania
Johnsonville, Tennessee	Portland, Oregon
Kankakee, Illinois	San Francisco, California
Kansas City, Missouri	Seattle, Washington
Lewiston, Idaho	Wilmington, Delaware

PRODUCTS

PIGMENT COLORS

Finely divided colored chemical pigments of organic and inorganic types in dry and paste forms. Many hues in each of the following broad classifications are available to the pigment consuming industries:

Alkali Resistant Reds—"Naphthanil" Diazo Pigments
Arylide Reds and Maroons—"Naphthanil" Diazo Pigments
"Auric" Ferric Oxide, Hydrated—Brown
Basic Zinc Chromate
Benzidine Yellows
Chrome Oranges

Chrome Yellow Pigments
Copper Maroon
"Dalamar" Azo Yellow
"Duol" Carmine Lithol Pigment
Durable Nonbleeding Reds and Maroons—Precipitated Diazo Pigments
Ferric Oxide, Hydrated (See "Auric" Ferric Oxide, Hydrated—Brown)
Green-Gold—Durable Organic Yellow
Hansa Yellows
Indanthrone Blues
Lithol Rubine Red

PIGMENTS DEPARTMENT

Molybdate Oranges

"Monastral" Pigments—Phthalocyanine, Blue

"Monastral" Pigments—Phthalocyanine, Green

"Monastral" Pigments—Reds and Violet

Organic Oranges—Diazo Pigments

Phosphomolybdic Acid Colors—Basic Dye Complex

Phosphotungstic Acid Colors—Basic Dye Complex

Pigment Green B

Pigment Scarlet

Platinum-Violet—Durable Shading Pigment

"Ramapo" Lightfast Blue and Green Pigments

Toluidine Reds

"Watchung" Red Pigments—Precipitated Diazo Pigments

Water Dispersible Colors—Organic and Inorganic

Zinc Yellow—Basic Zinc Potassium Chromate

USE: As coloring or compounding materials in paints, lacquers, enamels, printing inks, leather, linoleum, floor tile, coated fabrics, plastics, rubber, fancy coated paper and wall paper.

TITANIUM PIGMENTS

"Ti-Pure" Titanium Dioxide is available in two types, one in which the titanium dioxide is in the rutile form (as indicated by the suffix "R") and the other in which it is in the anatase form. Rutile types of pigment show 20-40% greater tinting strength and opacity than the anatase types.

"Ti-Pure" R Titanium Dioxide Rutile (Titanium Oxide)—TiO₂: A fine, dry, white powder; Sp. Gr. 4.2; index of refraction 2.71. Available in various grades with distinctive properties. USE: In paints, linoleum, lacquers, paper, leather, inks, rubber and plastics as a pigment. CONTAINERS: 50-lb. paper bags.

"Ti-Pure" Titanium Dioxide Anatase (Titanium Oxide)—TiO₂: A fine, dry, white powder; Sp. Gr. 3.88;

index of refraction 2.53. Available in various grades with distinctive properties. USE: Similar to "Ti-Pure" R. CONTAINERS: 50-lb. paper bags.

"Ti-Pure" VG Titanium Dioxide (Titanium Oxide)—TiO₂: A free flowing type of dry powder developed especially for use in vitreous enamels for iron and steel and the general ceramic field. "Ti-Pure" VG is not a pigment grade but a coarse particle size product falling mainly between 80 and 325 mesh. CONTAINERS: 50-lb. paper bags.

"Ti-Cal" R Titanium Calcium Pigment Rutile: A fine, white powder available in various grades with distinctive properties; Sp. Gr. 3.25; approximate analysis is 30% TiO₂ and 70% CaSO₄. USE: In flat paints, architectural finishes, gloss paints and enamels. CONTAINERS: 50-lb. paper bags.

SPECIALTY PRODUCTS

"Tipersul" Fibrous Potassium Titanate: Crystalline fibers 1 micron in diameter melting at 2500°F. Useful to 2200°F. USE: High temperature thermal, acoustical and electrical insulations; filter media. FORMS: Lumps, blocks and loose fibers. (Sold only through Wilmington Office.)

Columbium Metal—Cb: A ductile metal possessing low thermal neutron cross-section and high melting point. USE: Structural material in nuclear reactors and as a base for high temperature alloys. FORMS: Ingots and mill products of columbium and its alloys. (Sold only through Wilmington Office.)

Silicon, Hyperpure—Si: Semiconductor grades and Solar Cell grade. USE: In electronics industry for transistors, diodes, rectifiers and solar batteries. (Sold only through Wilmington Office.)

Titanium Metal—Ti: A light, strong, corrosion resistant metal. USE: Structural metal and alloy ingredient. FORM: Sponge metal. (Sold only through Wilmington Office.)

GENERAL DISTRIBUTION

Boston
Chicago

Detroit
Los Angeles
New York
Philadelphia

PLANTS:

Acrylics

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POLYCHEMICALS DEPARTMENT

TELEPHONE

GENERAL OFFICE: Du Pont Building Wilmington 98, Delaware

PRospect 4-1000

DISTRICT OFFICES:

Boston 10, Massachusetts
Chicago 46, Illinois

140 Federal Street
7250 North Cicero Avenue, Lincolnwood
(Chicago Calls) INdependence 3-7250; (Others) ORchard 5-1010
13000 West Seven Mile Road
2930 East 44th Street
Empire State Building, 350 Fifth Avenue
1616 Walnut Street

HAncock 6-1711
UNiversity 4-1963
LUdow 2-6464
LOngacre 3-6400
KIngsley 6-4600

Detroit 35, Michigan
Los Angeles 58, California
New York 1, New York
Philadelphia 3, Pennsylvania

PLANTS:

Orange, Texas

Parkersburg, West Virginia

Victoria, Texas

PRODUCTS

Acrylic Resin: (See "Lucite" Acrylic Resin, this page.)

"Alathon" Polyethylene Resin: Translucent white granular material. In the finished form it is flexible, extremely tough even at very low temperatures, unaffected by moisture and aging, resistant to most chemicals, solvents and greases. Among the lightest of all plastic materials, it has excellent dielectric properties and is tasteless, odorless and nontoxic. As a film it has very low water permeability but is more permeable to carbon dioxide, oxygen and other gases. Many compositions are available. Base resins differ in density, melt index, and molecular weight distribution. In addition, there are additives to improve surface properties, appearance or weatherability. Resins offered for electrical applications contain antioxidant to maintain the excellent low power factor and dielectric constant during processing. **USES:** Extruded into film and coatings for packaging, building construction, agricultural mulching, and lining of irrigation ditches and ponds; extruded onto wire and cable for insulation and jacketing and into pipe for conveying cold water, corrosive chemicals, and food products; injection molded into thousands of objects ranging from ink cartridges for ballpoint pens to garbage cans of 23-gal. capacity; blow molded into squeeze bottles, jars, and hollow shapes; thermoformed from heavy sheet into containers, trays, housings, etc. **CONTAINERS:** 50-lb. paper bags, 1,500-lb. nonreturnable corrugated containers, 10,000-lb. returnable collapsible rubber containers, 2,000-lb. unit loads (50-lb. bags), 100,000-lb. bulk car.

Brushes: (See Plastics Products Division, Page 95.)

"Butacite" Polyvinyl Butyral Resin (Sheeting): Soft pliable sheeting. Extremely flexible and tough over a wide range of temperatures and moisture conditions. In laminated safety glass, it is highly resistant to heat, light and moisture, also holds broken pieces of glass together under impact. Available in colorless, gradient band tinted, and in several transparent colors. **USE:** Automotive safety glass, bullet resistant glass, shatter resistant glazings for aircraft, safety shields for television; architectural applications requiring safety, glare control, or special color effects. **CONTAINERS:** 750-ft. rolls in fiber tubes, or palletized cartons.

Combs: (See Plastics Products Division, Page 95.)

"Delrin" Acetal Resin—(-OCH₂-)n: Thermoplastic in form of cylindrical pellets. Supplied in two basic compositions—500 series general purpose injection molding resins and 150 series general purpose extrusion resins. Supplied in natural (white) or number of standard colors. Molded or extruded articles have remarkable combination of chemical and physical properties: High strength and stiffness combined with toughness and resilience over wide temperature range; good dimensional stability in presence of moisture; high heat distortion temperature; excellent resistance to all types of organic solvents; excellent bearing characteristics and good abrasion resistance. **LIKELY USES:** Injection molded articles for automotive parts such as interior hardware, bushings and bearings for suspension and steering linkages, squirrel cage blowers, gears, instrument clusters, fuel pump and carburetor parts; electrical components. Pump impellers, housings and cover plates, showerheads, cutlery handles, tumblers, pen parts, appliance gears, combs, and aerosol containers; extruded articles and shapes include tubing, coated wire, sheeting, blow molded aerosol bottles. **CONTAINERS:** 50-lb. bags.

"Lucite" Acrylic Resin (Molding Powders): Granular solid and cube-cut (for injection molding and extrusion); in minute spherical granules (for compression molding). Available in water-white, transparent and a range of transparent, translucent and opaque colors. Molded and extruded articles have outstanding crystal transparency in clear form; excellent outdoor stability; "light-piping" and "edge-lighting" qualities; lightness of weight; shatter resistance; dimensional stability. Three grades are available for injection molding and extrusion (each with its counterpart in forms suitable for compression molding): soft-, medium- and hard-flow. The hard-flow formulation is indicated wherever heat resistance is important in an acrylic part. **USE:** Molded by injection or compression for automotive parts (horn buttons, instrument dials, tail light lenses, indoor and outdoor decorative medallions, reflectors); combs and brush backs; lighting fixtures; pen and pencil barrels; small signs and displays; refrigerator parts (door handles, freezing compartment doors, decorative medallions); costume jewelry; aircraft parts. Extruded for lighting fixtures, large signs, glazing and decorative trim. **CONTAINERS:** 250-lb. fiber drums and 1,000-lb. cartons.

POLYCHEMICALS DEPARTMENT

"Lucite" Acrylic Resin Dental Materials: Monomer and granular polymers used in the manufacture of dentures, teeth, crowns and inlays.

Methyl Methacrylate Monomer— $\text{CH}_2\text{C}(\text{CH}_3)\text{COOCH}_3$: Water-white, mobile, volatile liquid containing a small amount of polymerization inhibitor. USE: Primarily in the manufacture of acrylic resins and plastics. CONTAINERS: 5-gal. cans, 55-gal. drums, tank trucks, 8000-gal. tank cars.

Methacrylate Polymers: [See "Lucite" Acrylic Resin (Methacrylate Polymers), Page 6.]

"Monocite" Methacrylate Monomer—H100: A specially manufactured grade of methyl methacrylate. USE: In the manufacture of cast acrylic sheets. CONTAINERS: Insulated tank trucks.

Nylon Filaments: [See "Tynex" Nylon Filaments, and Nylon Monofilaments, Page 95.]

Nylon Molding Powders: [See "Zytel" Nylon Resin (Molding Powders), Page 95.]

Nylon Monofilaments: Monofilaments are available in sizes from 3 to 100 mils. They are produced from a series of nylon polymer compositions varying in physical properties. Typical applications are fishing line, leaders and snelled hooks, woven and non-woven applications, industrial fasteners, air and liquid hose reinforcement materials.

Filaments are produced in both round and special cross-sectional shapes and colors.

Monofilaments are available in 46 1/2-in. long hanks and cut pieces and in continuous length on spools.

Nylon Resins, Soluble: [See "Zytel" Nylon Resin (Soluble Resin), Page 95.]

Polyethylene: (See "Alathon" Polyethylene Resin, Page 93.)

"Rulan" Flame-Retardant Plastic for Electrical Insulation: A white granular material specially developed for the electrical industry to meet the need for a good dielectric with flame-retardant characteristics. Does not support combustion or drip when heated above the melting point; electrical properties approach those of "Alathon" polyethylene resin. USE: Extruded as insulation for many types of wires and cables where flame resistance is important; injection molded into components for radio, television and telephone. CONTAINERS: 50-lb. paper bags.

"Stren" Monofilament Fishing Line Products: Specially processed high strength, limp and low elongation monofilaments for use as spin fishing line in breakloads from 2 to 30 pound test and oval casting, surf and trolling lines in breakloads from 10 to 60 pound test. Packaged in plastic boxes containing one or more 50 and 100 yard spools. Product line includes individually packaged knotless tapered leaders and level leader packs in a complete range of sizes. Sold only through authorized agents.

"Teflon" FEP-Fluorocarbon Resin (Extruder): Clear 1/8" bead cut pellets; melt extrusion, compression and injection molding; of continuous service up to 200°C; outstanding properties; unaffected by virtually all solvents; excellent low temperature toughness; good adhesion. USE: Extruded insulation for high and high temperature wire and cable, jackets for coaxial cables, chemical and electrical tube electrical components, such as tube sockets, connectors, etc., bearings, seals and gaskets. 5-, 50-, and 100-lb. fiber containers.

"Teflon" TFE-Fluorocarbon Resin (Molders): White granular powder of small particles; affected by all solvents and practically all solvents; outstanding electrical properties; continuous service at 500°F. (260°C.); good low temperature toughness; unique resistance to adhesion to all sticky materials. USE: Molded, extruded from sheet or rod stock as gaskets, packing, seals, bearings; spacers for coaxial cables, insert connectors, tube sockets; insulation for high temperature and high voltage wires and quality wrapping tape for insulation in motors and conductors; nonadhesive surfaces for bearing sealing plates and guides on packaging machine molds. CONTAINERS: 5-, 25- and 220-lb. fiber

"Teflon" TFE-Fluorocarbon Resin (Extruder): White powder, specially manufactured for use in a modified extrusion technique involving organic extrusion aids. Properties similar to "Teflon" molding powder. USE: Extruded as wire insulation, and shapes, for use in chemical and lined pipe, gasket stock, insulation on air electronic hookup wire, tape wrapped insulation. CONTAINERS: 18- and 50-lb. fiber containers.

"Teflon" TFE-Fluorocarbon Resin (Aqueous Solution): Milky white liquid consisting of minute particles of tetrafluoroethylene resin in water (60% solids). A small amount of wetting agent. Offers fundamentally the same properties as "Teflon" molding powder, with the same advantages of the liquid form. USE: Cast capacitor layer insulation; coated glass fabric and cloth for electrical insulation, non-adhesive sheets, impregnated asbestos fabric and braid for gas packing; finishes for non-adhesive coatings; wire for magnet wire; blends with other resins and fillers. CONTAINERS: 1-, 5-, and 30-gal. drums.

Toilet Articles: (See Plastics Products Division, Page 93.)

Toothbrushes: (See Plastics Products Division, Page 93.)

"Tynex" Nylon Filaments, Tapered: Black, essentially uniform taper from butt to tip. USE: Primarily in paintbrushes. Paintbrushes made of "Tynex" used with all paints; hold and spread paint well; easy to clean. CONTAINERS: Boxes containing bundles of minimum.

POLYCHEMICALS DEPARTMENT

PLASTICS PRODUCTS DIVISION

"Tynex" Nylon Filaments, Level: Natural, black and colors in a wide range of constant diameters. Supplied in paper-wrapped hanks (diameter 2", length 46 $\frac{1}{2}$ ", weight approximately 4 lb.); in cut pieces, paper-wrapped (diameter 2", lengths 1" through 46 $\frac{1}{2}$ " in increments of 1/16"); and in the form of multistrand ropes on spools and single-strand continuous lengths on spools (returnable metal spools are 12" in diameter and each spool holds approximately 5 lb. net weight of filament). "Tynex" is tough and strong; resistant to abrasion, heat, moisture, petroleum products, alkalis and dilute acids. Has excellent bend-recovery and flex-life. Use: Filling for personal, household, maintenance, industrial brushes, and mechanical street sweeps; filament for wigs, surgical sutures. CONTAINERS: Hanks, cut pieces and spools (5) shipped in cartons. Approximate net weight of filament per carton: 25-lb. minimum.

"Zytel" Nylon Resin (Molding Powders): Solid granular material, cube-cut or chopped; some types available in colors. Several types of nylon are available, varying in heat resistance, solvent resistance and flexibility. In general, articles molded, extruded or machined from nylon are tough over a wide range of temperatures, resistant to abrasion, form-stable at high temperatures, strong in thin sections, light in weight and resistant to chemicals and solvents; and have unusual bearing characteristics. Use: Injection molded for automotive parts (interior lenses,

light-load gears and bearings, fuse holders, insulator bushings, pedal bushings); coil forms of many types, wire-connectors, strain-relief grommets, battery cases; mechanical parts for textile machinery, business machines, home movie cameras, electric shavers, household appliances; tumblers, combs, brush backs; sterilizable medical items. Extruded as abrasion-resistant jacketing for electrical wires and cables and for mechanical cables. CONTAINERS: 25-lb. cans.

"Zytel" Nylon Resins (Special Extrusion Powders): Solid granular material, cube-cut. Properties similar to molding powders, but with still greater toughness and much higher melt viscosity. High melt viscosity permits the extrusion of shapes to accurate dimensions. Use: Precision-extruded shapes such as rods, tubing, and channels of various design; tough transparent film sheeting; coated flexible materials; blown bottles and other containers. CONTAINERS: 25-lb. cans.

"Zytel" Nylon Resin (Soluble Resin): Cream colored cubes. Alcohol-soluble polyamides having an unusual combination of properties, including toughness, flexibility and high elongation; excellent resistance to most solvents including aliphatic and aromatic hydrocarbons, and to alkalis and oxygen-containing gases. Use: Coatings for textiles and paper; adhesives; hydrocarbon barrier in fuel cells. CONTAINERS: 50-lb. paper bags.

PLASTICS PRODUCTS DIVISION

GENERAL OFFICE: New York 1, New York Empire State Building, 350 Fifth Avenue

TELEPHONE
Longacre 3-6400

PLANT: Leominster, Massachusetts

PRODUCTS

Combs and Brushes: Combs and brushes of the types listed below, made of "Lucite" acrylic resin, "Zytel" nylon resin, "Delrin" acetal resin and other plastics, are available in various colors and designs, some of which are design-patented. Combs made of nylon are marked DuPont nylon. Combs made of "Delrin" are marked DuPont "Delrin". Some are sold under the trademarks "Lido", "Arlton" and "La Belle"

- Beautician Combs
- Women's Dressing Combs
- Purse-size Combs
- Purse-size Brush-Combs
- Purse-size Curl-Combs
- Purse-size Comb and Brush Sets
- Men's Combs

- Men's Pocket Combs, with or without Clips
- Barbers' Combs
- Infants' Combs and Brushes

Toiletries: Hand brushes, nail brushes, soap boxes, toothbrush holders. Some soap boxes and toothbrush holders made of "Alathon" polyethylene resin.

Toothbrushes: A line comprising all the well-known and accepted styles for adults and children, sold under the trademarks "Arlton", "Dentabest", "Paramount" and "Park Avenue", bristled with "Tynex" nylon. Toothbrushes made of nylon are marked **All nylon**. Included are brushes with handles of "Lucite" acrylic resin and of "Zytel" nylon resin. Toothbrushes are packaged in transparent plastic utility containers and in boxes wrapped in cellophane. Also a line of brushes for dentures.

REMINGTON ARMS COMPANY, INC.

(Stock owned: common 60.17%; preferred 99.55%)

GENERAL OFFICE: Bridgeport 2, Connecticut

EL

BRANCH OFFICES:

Berkeley 2, California
Boston Office
Chicago 3, Illinois
Cleveland 14, Ohio
Dallas 1, Texas
Greensboro, North Carolina
Jacksonville 7, Florida
Memphis 3, Tennessee
Minneapolis 3, Minnesota
New York Office
Pittsburgh 22, Pennsylvania
St. Louis 1, Missouri
Salt Lake City 11, Utah

2735 San Pablo Avenue
939 Barnum Avenue; Bridgeport 2, Conn.
7 South Dearborn Street
1308 Union Commerce Building
1241 National Building
517 Jefferson Building
1603 Prudential Building, 841 Miami Road
1701 Sterick Building
614 Plymouth Building
939 Barnum Avenue; Bridgeport 2, Conn.
2001 First National Bank Building
1810 Arcade Building
909 Walker Bank Building

THorn.
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RIVER
BRoad
FLan.
JAC
FEC
ED.
GF
M
EL

PLANTS:

Bridgeport, Connecticut

Findlay, Ohio

Ilion, New York

PRODUCTS

REMINGTON SHOTGUNS

"Sportsman" 58 Shotgun—Autoloading: 3-shot; 12, 16, 20 gauges. "Power-Matic" gas-operated shotgun. Non-recoiling barrel. USE: For skeet, trap, upland game and water-fowl shooting.

Model 11-48 Autoloading Shotgun: 5-shot; made in 12, 16 and 20 gauges (4-shot in 28 and 410 gauges). 3-shot plug supplied without cost. USE: For upland game and waterfowl shooting; small upland game and skeet for 28 gauge and 410 gauge.

Model 878 "Automaster" Shotgun—Autoloading: 3 shot; 12 gauge. "Power-Matic" gas-operated shotgun. Non-recoiling barrel. USE: For upland game and waterfowl shooting.

"Wingmaster" Model 870 Shotgun—Pump Action: 5-shot; 12, 16 and 20 gauges; takedown; hammerless; solid breech. 3-shot "Vari-Weight" metal plug in 12 gauge only; 3-shot wooden plug furnished in all gauges. USE: For skeet, trap, upland game and waterfowl shooting.

REMINGTON RIFLES

Model 721 Bolt Action Big Game Rifle: Made in 280 Remington, 30-06 Springfield, 300 H & H Magnum. and 270 Win. calibers; 5-shot capacity. USE: For medium and big game hunting.

Model 722 Bolt Action Big Game Rifle: Made in 222 Remington (6-shot capacity), 222 Remington Magnum. 243 Win. (6-shot capacity), 244 Remington, 257 Roberts. and 308 Win. calibers; 5-shot capacity. USE: For varmint, medium and big game hunting.

Model 725 Bolt Action Big Game Rifle: De high power rifle made in 222 Remington, 243 Remington, 30-06 Springfield, and 270 Win. 5-shot capacity. USE: For medium and big game.

"Woodsmaster" Model 742 Rifle—Autoloading Game: "Power-Matic" gas-operated rifle. Has solid breech; 280 Remington, 30-06 Springfield Win. calibers; also available in carbine model Remington, 308 Win. and 30-06; 5-shot capacity. For medium and big game hunting.

"Gamemaster" Model 760 Rifle—Slide Action Game: High power slide action; hammerless; solid breech; made in 308 Win., 30-06 Springfield, 270 Win., 280 Remington calibers; 5-shot capacity available in carbine model in 280 Remington, 308 Win. and 30-06; 5-shot capacity. USE: For medium and big game hunting.

"Targetmaster" Model 510 Rifle—22 Calib Action: Single shot; chambered for short, long rifle cartridges, without adjustment; higher speed regular cartridges; open or peep sights. USE: For game and target shooting.

"Scoremaster" Model 511 Rifle—22 Calib Action: Box magazine repeater; magazine hold cartridges; chambered for short, long and long rifle speed and regular cartridges, without adjustment; peep sights. USE: For small game and target shooting.

"Sportmaster" Model 512 Rifle—22 Calib Action: Chambered for short, long and long rifle speed and regular cartridges, without adjustment; matic ejector; bolt action repeater; tubular magazine 22 short, 17 long or 15 long rifle cartridges; Receiver peep sight, or open sights. USE: For small game and target shooting.

REMINGTON ARMS COMPANY, INC.

"Matchmaster" Model 513T Rifle—22 Caliber Bolt Action—Target: 7-shot capacity; completely equipped with target sights, target stock, adjustable front swivel and precision sights; moderately priced. **USE:** For fine target shooting.

Model 514 Single Shot 22 Caliber Bolt Action Rifle: Chambered for short, long and long rifle regular and higher speed cartridges, without adjustment. Open sights. **USE:** Small game and target shooting.

Model 521T 22 Caliber Bolt Action Rifle: 7-shot capacity. Especially designed for hunting and small bore target shooting. Chambered for long rifle cartridges. Target aperture on the micrometer rear sight is easily removed to give fine hunting peep sight. Adjustable front sling swivel; 1-in. sling of high quality leather; Lyman No. 57RS micrometer rear sight. Weight, about 7 lb. **USE:** For small game and target shooting.

Model 550 Autoloading 22 Caliber Rifle: Chambered for short, long or long rifle cartridges, without adjustment. Magazine holds 22 short, 17 long or 15 long rifle cartridges. **USE:** For small game hunting and shooting galleries.

"Speedmaster" Model 552 Autoloading 22 Caliber Rifle: Chambered for short, long and long rifle cartridges, without adjustment. Magazine holds 20 short, 17 long or 15 long rifle cartridges. **USE:** For small game hunting and shooting galleries.

"Fieldmaster" Model 572 Rifle—22 Caliber Slide Action: Takedown; hammerless; solid breech; slide action; 23-in. barrel; chambered for short, long and long rifle cartridges, without adjustment; magazine holds 20 short, 17 long or 15 long rifle regular or higher speed cartridges. Also available in Lightweight model ("Fieldmaster" Model 572 Lightweight) with choice of Crow-Wing Black or Buckskin Tan colors. **USE:** For small game hunting and informal shooting.

"Rangemaster" Model 40X Rifle—22 Caliber Bolt Action—Target: Heavy barrel; target stock; adjustable sling swivel; built-in bedding device; weight approximately 12 lb. with heavy barrel, 10 lb. with standard barrel. **USE:** For fine target shooting.

REMINGTON AMMUNITION

Shotgun Shells with "Kleanbore" Priming

"Express" Shotgun Shells: Green corrugated shell with Remington Crimp; 10, 12, 16, 20, 28 and 410 gauges (10 and 410 gauges in roll crimp only, not corrugated). Outstanding heavy load, hard hitting, even pattern. Wetproof, long range. Loaded with progressive-burning powder. Also in standard length (2 1/2-in.) Magnum and extra length 3- and 3 1/2-in. shells. **USE:** For maximum long range game shooting.

"Express" Buckshot Loads: Green corrugated shell; 12, 16 and 20 gauges. **USE:** For deer, black bear, wolf; also guard and police duty.

"Express" Slugs—Rifled: Green corrugated shell; 12, 16, 20, 28 and 410 gauges (410 gauge not corrugated). Increased velocity, great striking energy, long range. Im-

proved bullet-type shape, external rifling and hollow base cause the slug to travel with fine accuracy. **USE:** For deer, bear and other big game.

"Shur Shot" Shotgun Shells: Red corrugated shell; 12, 16 and 20 gauges. High quality, smokeless powder shell with Remington Flat-Top Crimp. **USE:** For medium range game shooting; minimum recoil.

"Shur Shot" Scatter Loads: Red corrugated shell; 12, 16 and 20 gauges. Smokeless powder. Shot divided into cells by wads between layers to give open patterns with chokebored shotguns. **USE:** For short range shooting.

Target Loads: Green corrugated shell; 12, 16 and 20 gauges. **USE:** For trap and skeet shooting.

Remington Rim Fire 22 Caliber Cartridges with "Kleanbore" Priming

"Kleanbore" is the original noncorrosive priming in the United States. It will not cause rust or corrosion in rifle or shotgun barrels.

"Hi-Speed" Cartridges—22 Caliber Rim Fire: Fine accuracy, longer range, greater energy, higher velocity than standard velocity 22's. **USE:** For small game and pest shooting at long ranges.

"Rocket" Cartridges—22 Caliber Rim Fire—Short: Special composition bullet; high muzzle velocity. **USE:** For informal shooting and medium-range small game hunting.

Remington Match 22 Caliber Rim Fire Cartridges: Long rifle ammunition that employs smokeless powder and "Kleanbore" priming. Unexcelled for accuracy. **USE:** For match rifle, and match pistol shooting.

"Spatter-Less" Cartridges—New and Improved 22 Caliber Rim Fire—Gallery: Special composition bullet. Nontoxic; pulverizes on impact. **USE:** For gallery shooting.

Standard Velocity 22 Caliber Rim Fire Cartridges: For the shooter who prefers regular speed ammunition. **USE:** For hunting small game or target shooting.

Remington Blank and Shot Cartridges

Made in assorted rim fire and center fire calibers for rifles, revolvers and pistols. Blank cartridges used largely for athletic events. Shot cartridges used for small game, and in miniature trap and skeet shooting. "Kleanbore" priming.

Remington Center Fire Rifle Cartridges

Calibers for all sporting purposes. "Kleanbore" priming does not cause rust and corrosion. Special progressive-burning powder gives high velocities. Powder and priming protected from excess oil by a special oilproof process. Famous for high accuracy. **USE:** For medium and big game hunting and target shooting.

"Hi-Speed" Cartridges—Center Fire Rifle: Available in a wide variety of center fire calibers. **USE:** For medium and big game hunting.

"Express" Rifle Cartridges—Center Fire: Available in a wide variety of center fire calibers. **USE:** For medium and big game hunting.

REMINGTON ARMS COMPANY, INC.

Remington Center Fire Rifle Cartridges with "Core-Lokt" Bullets

Cartridges in big game calibers. The "Core-Lokt" bullet provides maximum expansion, minimum disintegration and unexcelled knockdown power. USE: For hunting all North American big game.

Remington Pistol and Revolver Cartridges

Cartridges in all standard calibers. Protected by a special oilproof process against effects of oil used for lubrication. Will retain initial energy whether in chamber or magazine. Powerful, accurate, penetrating. Noncorrosive "Kleanbore" priming. USE: For police, hunting and target purposes.

"Targetmaster" Cartridges—Center Fire—Pistol and Revolver: Available in several center fire calibers. Distinguished by wad cutter bullet, except for 38 Special round nose. USE: For pistol and revolver target shooting.

"Hi-Way Master" Cartridges—Center Fire—Pistol and Revolver: Available in 38 Special and 45 Automatic calibers. Distinguished by metal cased, metal penetrating bullet. USE: Law enforcement.

REMINGTON TRAPS AND TARGETS

"Blue Rock" Targets: "Easy Breakers." Clean to handle; easy to see. They smoke on impact of shot charge. The target with chrome yellow dome and flywheel action. USE: In all target traps which throw standard targets.

Remington Hand Target Thrower: Light and easy to operate. Duplicates every type of wing shot by throwing targets any way desired. "The spring does the work."

"Expert" Trap: For camps, cottages, boat and motor trips and "quail or walk-up" installations having a multiple trap layout. Light in weight, strong construction and portable. Low in price.

"Blue Rock" Trap: Ideal for skeet or trapshooting for small clubs and private estates. Throws single and double targets for trapshooting. Shovel-type carrier. Easy to install and operate. Moderately priced.

"Blue Rock" Skeet Outfit: Includes two "Blue Rock" traps, single lever control and same accessories as furnished with "Wonder" Single Lever Skeet Outfit. Moderately priced.

Remington Autoloading Model 100T and 200S Trap: Holds 203 targets. Connects to standard 110 volt power supply. Easy to adjust for windage, elevation and tilt. Models for trap and skeet shooting. No trap boy needed.

"Wonder" Skeet Outfit—De Luxe Electric: For DC or AC operation—DC outfit consists of two "Wonder" traps with electrical releases and accessories. For AC operation a Remington AC adapter is supplied in addition to DC equipment.

"Wonder" Skeet Outfit—Single Lever: Includes two "Wonder" traps, single lever skeet pull, and galvanized wire. No additional accessories necessary. Can be adapted to electric release.

"Auto Angling" Model 41 Trap: Throws pe and double targets at 72 different angles. adjustable. Simple operation. USE: For trapshooting.

REMINGTON POWDER ACTUATED T Stud Drivers and Accessories

Accessory Fittings: Couplings, tension washer conduit clips, discs, etc., for special fastening us

Model 455A Remington "Power-Mate": operated powder actuated basic unit. May be with any one of four barrel kits to make up a S for driving alloy steel studs into concrete, similar hard construction materials and for fast materials (wood, sheet metal, insulation, fixture concrete or steel base materials. Weight: 5¼ lb.

K-1 "Captive-Stud" Kit: Built-in arresting vents free flight of studs in case of over-penetration construction materials. Weight: 6 lb.

K-2 ¼-in. Light Duty Barrel Kit: Anch diameter studs with 22 caliber standard Pow Weight: 3¼ lb.

K-3 ¾-in. Medium Duty Barrel Kit: Anch diameter studs with 22 caliber special Pow Weight: 3 lb.

K-4 ¾-in. Medium and Heavy Duty Bar Anchors: ¾-in. diameter studs with 32 caliber Pow Weight: 4 lb.

"Mighty-Mite" Stud Driver—Remington M A highly simplified, single-shot, hammer-operated actuated fastening tool. Made with ¼-in. bar caliber rim fire for driving ¼-in. studs only into tion materials as described above. Weight 3¼ lb

Special Guards for Model 455A Stud Drive changeable with standard guard. Guards conform of prefabricated building materials and fitting driving studs in hard-to-reach places.

Stud Driver Power Loads—Special 22 and 32 Rim Fire: Eight graded powder charges in 22 ca five in 32 caliber to control penetration of ¼-in. and ¾-in. diameter fastening studs respectively struction materials. For medium duty application: studs may be used in combination with 22 calib Loads. Color of wad crimped into brass case i powder charge.

Studs for Construction Fastening: Special ha steel. Four general types—standard head, break- internal thread, external thread—53 varieties for sp fastening uses. Stud is held in barrel by oversi. "Power Guide" retainer disc cemented to head Maximum stud diameter is ¾-in.; thread sizes N.C., ¼-in.—20 N.C. and 10-24 N. C.

Remington Industrial Gun and Shells

Model 400 Remington Industrial Gun: For r clinker rings and balls which form in rotary kilns the manufacture of cement, refractories, lime, lig aggregates, lime sludge, etc. Also for removing p rocks, ice and other obstructions in quarries and Weight of gun and mount 176 lb.

REMINGTON ARMS COMPANY, INC.

Remington Industrial Shells: Used in above gun. Approximately 8 gauge. Muzzle energy, 7,475 ft.-lb. Muzzle velocity, 1,600 ft. per sec. Also made in Magnum. Muzzle energy, 9,000 ft.-lb. Muzzle velocity, 1,700 ft. per sec.

Remington Humane Stunners, Power Loads and Cartridges

Humane Stunner Power Loads: Special 22 caliber crimped shot case blank power loads. Available in five graded load strengths: strengths indicated by color dip on nose of load case.

Model 411B Remington Humane Stunner: A single shot, bolt action tool for stunning animals (cattle, hogs, sheep) in meat packing houses. Contact-trigger operated. Short-travel piston with affixed concussion knob delivers blow of sufficient force to render animal unconscious prior to slaughter. Knobbed bolt handle, extended wooden operating handle; two-hand operation.

Model 411C Remington Humane Stunner: Similar in design to Model 411B but employing a sleeve type bolt, and an automatically retracting penetrator rod instead of a concussion knob. Extended wooden handle; two-hand operation.

Model 412 Remington Humane Stunner: Similar to Model 411C in that it employs sleeve bolt and automatically retracting penetrator rod. Lever control; can be held and fired with one hand. Does not include extended wooden operating handle.

Model 412A Remington Humane Stunner: Similar to Model 412 in that it employs sleeve bolt and lever control, and does not have extended wooden operating handle. Features a 2½ in. diameter concussion knob instead of penetrator rod.

Model 413 Remington Humane Stunner: Similar to Model 411B in that it employs knobbed bolt handle, etc. Features short handle, 2½ in. diameter concussion knob.

Remington Stun Safe Humane Stunning Cartridges —22 Caliber Rim Fire: For industrial use only. Special composition projectile contains no lead, is non-toxic. Features 'Concussion Cone' bullet design, 2,000 feet-per-second velocity, automatic fragmentation on contact with hard surface, "Kleanbore" primers. For use in any 22 caliber rimfire rifle designed for firing of maximum-power 22 caliber 'Long Rifle' cartridges.

CHAIN SAWS AND ACCESSORIES

Super 75 Model: Direct-drive transmission, 7500 rpm engine speed at full load, Remington Power Pulse engine, 7/16 in. pitch—.058 in. tang chain, Remington Roller Bearing guide bars in 18-, 24- and 30-in. lengths. Horizontally mounted engine.

Pro 88 Model: Direct-drive transmission, 6000 rpm engine speed at full load, 7/16 in.—.058 in. tang chain, Remington Roller Bearing guide bars in 18-, 24- and 30-in. lengths. Vertically mounted engine.

Bantam Model: Direct-drive transmission, 5500 rpm engine speed at full load, 7/16 in. pitch—.058 in. tang chain, Remington Roller Bearing guide bars in 18-, 24- and 30-in. lengths. Horizontally mounted engine.

Bantam P Model: Similar to Bantam Model but equipped with 16-in. capacity pinchless-bow guide bar.

SL-5 Model: Direct-drive transmission, 5500 rpm engine speed at full load, 7/16 in. pitch—.058 in. tang chain, Remington Roller Bearing guide bars in 18-, 24- and 30-in. lengths. Vertically mounted engine.

SL-5P Model: Similar to SL-5 Model, but with 16-in. capacity pinchless-bow guide bar.

GL-7 Model: Similar to SL-5 Model, but with more powerful engine.

SL-5R and GL-7R Models: Similar to SL-5 and GL-7 Models but with planetary-gear transmissions (3.56-to-1 ratio), 9/16 in. pitch—.058 in. tang chains (or optional 9/16 in. pitch—.077 in. tang chains), bar lengths to 36 in.

SL-5RP and GL-7RP Models: Similar to SL-5R and GL-7R Models but with 16-in. capacity pinchless-bow guide bars, no chain option.

SL-5G Model: Similar to SL-5 Model but with 2-to-1 ratio gear transmission, 1½ in. pitch—.058 in. tang chain, bar lengths to 36 in.

SL-5GS Model: Similar to SL-5G Model but with 3.2-to-1 gear ratio.

SL-5GP and SL-5GPS Models: Similar to SL-5G and SL-5GS Models, but with 16-in. capacity pinchless-bow guide bars.

2-MG Model: Detachable geared-transmission (2.86-to-1 ratio) 360° indexing bar, 9/16 in. pitch—.077 in. tang chain, Remington Roller Bearing guide bars in 18-, 24-, 30-, 36-, 42- and 54-in. lengths.

3-E Model: AC-DC, 25 to 60 cycle, 115 volts (230 volts available), rated 25 amps at 115 v. Spiral bevel gears, 800 feet-per-minute chain speed; generator wattage required: 5,000 watts. 9/16 in. pitch—.058 in. tang chain, 24- or 36-in. Remington Roller Bearing guide bars.

EL Model: AC-DC, 25 to 60 cycle, 115 volts, rated 12 amps at 115 v. Spiral bevel gears, 800 feet-per-minute chain speed; generator wattage required: 2,000 watts. 7/16 in. pitch—.058 in. tang chain, Remington Roller Bearing guide bar 18 in. long.

1-P Model: One-man air-powered saw with 600 feet-per-minute chain speed, 4-vane rotary motor, automatic oiler, equipped with ¾-in. pitch—.058 in. tang chain, 12-in. Remington Roller Bearing guide bar.

6-P Model: Two-man air-powered saw with 1900 feet-per-minute chain speed, 4-vane rotary motor, automatic oiler, equipped with 9/16 in. pitch—.077 in. tang chain, Remington Roller Bearing guide bars in lengths of 18-, 24-, 30-, 36- and 42-in.

Chain Saw Accessories

Remington Flat Top Saw Chain: 7/16 in. pitch—.058 in. tang. Features specially designed cutting teeth for fast cutting, easier sharpening, maximum strength. In lengths to fit guide bars and in 50- and 100-ft. reels.

Remington 48411 Chain Saw Oil: Made for 2-cycle engines—specifically formulated for mixing with gasoline. CONTAINERS: Pt., in 24-pt. boxes.

REMINGTON ARMS COMPANY, INC.

REMINGTON CONSTRUCTION AND INDUSTRIAL TOOLS

Vibrators, Concrete—Gasoline-Electric-Air

10 GV Model: $6\frac{3}{4}$ HP gasoline engine, 7500 to 10,000 vpm, flexible shaft drive, 14- to 28-ft. lengths. Choice of heads, $1\frac{3}{4}$ -, $2\frac{3}{8}$ -, $3\frac{1}{4}$ or $4\frac{1}{2}$ -in. diameters.

7 GV Model: $6\frac{3}{4}$ HP gasoline engine, 7000 vpm, flexible shaft drive, 14- to 28-ft. lengths. Choice of heads, $1\frac{3}{4}$ - or $2\frac{3}{8}$ -in. diameter.

36 GV Model: 3 HP gasoline engine, 3600 vpm, flexible shaft drive, 12- to 24-ft. lengths. Choice of heads, $1\frac{1}{8}$ - or $2\frac{1}{8}$ -in. diameter.

1 EV Model: 1 HP Electric Universal motor, 115 volt AC-DC 10,000 vpm, flexible shaft drive, 2- to 14-ft. lengths. Choice of heads, $1\frac{1}{4}$ - or $1\frac{1}{8}$ -in. diameter.

2 EV Model: $1\frac{1}{2}$ HP Electric Universal motor, 115 or 230 volt, AC-DC 10,000 vpm, flexible shaft drive, 2- to 14-ft. lengths. Choice of heads, $1\frac{1}{4}$ - or $1\frac{1}{8}$ -in. diameter.

3 EV Model: 2 HP Electric Universal motor, 115 or 230 volt, 10,000 vpm, flexible shaft drive, 7- to 21-ft. lengths. Choice of heads, $1\frac{1}{8}$ -, $2\frac{3}{8}$ - or $3\frac{1}{4}$ -in. diameter.

EV 26 Model: Electric motor-in-head 115 volt AC-DC, 7- to 14-ft. lengths, head $2\frac{3}{8}$ -in. diameter.

2 PV Model: $1\frac{3}{4}$ HP air motor, 10,000 vpm at 90 psi, flexible shaft drive, 2- to 14-ft. lengths. Choice of heads, $1\frac{1}{4}$ - or $1\frac{1}{8}$ -in. diameter.

6 PV Model: $3\frac{1}{2}$ HP air motor, 10,000 vpm at 90 psi, flexible shaft drive, 7- to 21-ft. lengths. Choice of heads, $1\frac{1}{8}$ -, $2\frac{3}{8}$ - or $3\frac{1}{4}$ -in. diameter.

PV 24 Model: Air motor-in-head, 10,000 vpm at 90 psi, 7- to 14-ft. lengths, head $2\frac{1}{2}$ -in. diameter.

Impact Wrenches—Electric and Air

W 1000 Model: Electric, 13 amps, 115 volts, $\frac{3}{4}$ in. square drive 1 in. capacity, reversible, weight: 18 lbs.

W 120 Model: Electric, 4 amps, 115 volts, $\frac{1}{2}$ in. square drive, $\frac{5}{8}$ in. capacity, reversible, weight: $7\frac{1}{4}$ lbs.

PW 206P Model: Air, $\frac{1}{2}$ in. square drive, $\frac{3}{8}$ in. capacity, reversible, weight: $3\frac{3}{4}$ lbs.

PW 308P Model: Air, $\frac{1}{2}$ in. square drive, $\frac{5}{8}$ in. capacity, reversible, weight: 6 lbs.

PW 4012P Model: Air, $\frac{3}{4}$ in. square drive, $\frac{3}{4}$ in. capacity, reversible, weight: 11 lbs.

PW 5014S Model: Air, $\frac{3}{4}$ in. square drive, 1 in. capacity, reversible, weight: $19\frac{3}{4}$ lbs.

Circular Saws—Electric and Air

86 $8\frac{1}{2}$ in. Model: Electric Circular Saw, $2\frac{7}{8}$ in. cutting capacity, 12 amps, 115 volts, 35 lbs. shipping weight.

P 86 Model: Air, $8\frac{1}{2}$ in. Circular Saw, maximum cutting capacity $2\frac{7}{8}$ in, weight: 14 lbs.

P 128 Model: Air Circular Saw, 12 in. blade size, 4 5/16 in. maximum cutting capacity, weight: 33 lbs.

Flexible Shaft Grinders

1 EG Model: $\frac{3}{4}$ HP, single phase, 115 or 230 volts, 6 ft. shaft, 3450 rpm, available with hanger pedestal or round base mounting, straight and angle spindles, available accessories.

2 EGP Model: Same as 1 EG except speed—supplies speeds of 1650, 2700, 4500 or 7400 rpm.

6 EG Model: Same as 1 EG except HP which

5 FG Model: Same as 1 EG except HP and HP, 3 phase, 220 or 440 volts.

7 FG Model: Same as 1 EG except HP and p. 3 phase, 220 or 440 volts.

Gasoline Trowels

T 428 Model: 28 in. capacity, 100 lbs., four : supplied with combination float finish blades 6 :

T 434 Model: 34 in. capacity, 130 lbs., four : available with float or finish blades.

T 444 Model: 44 in. capacity, 216 lbs., four : supplied with finish or float blades.

Air Tools

Grinders—Air

PGK 1030L Model: Lever type, 30,000 rpm, Midget die grinder, weight: 12 oz.

PGK 1030B Model: Button type, 30,000 rpm, Midget die grinder, weight: 12 oz.

PGK 2022L Model: 22,000 rpm, lever type, : Midget die grinder, weight: $1\frac{1}{8}$ lbs.

PGK 2122L Model: Lever type, 22,000 rpm, Midget die grinder with extended spindle, weig

PGE 1030L Model: Lever type, 30,000 rpm, : grinder for $\frac{1}{4}$ in. vitrified or 1 in. organic whe 12 oz.

PGE 1030B Model: Same as PGE 1030L excep ton throttle.

PGE 2022L Model: 22,000 rpm small wheel gr throttle for 1 in. vitrified or $1\frac{1}{2}$ in. organic whe $1\frac{1}{8}$ lbs.

PGE 2122L Model: Same as 2022L except wit spindle, weight: $1\frac{3}{4}$ lbs.

PG 3018L Model: Small wheel grinder for $1\frac{1}{4}$: or 2 in. organic wheels, weight: $2\frac{7}{8}$ lbs. less wi

PG 2022L Model: 22,000 rpm grinder for 1 in. $1\frac{1}{2}$ in. organic wheels, weight: $1\frac{3}{4}$ lbs. less wi

PG 506G Model: 6000 rpm grinder for 4 in. vitri. organic wheels, weight: $8\frac{3}{8}$ lbs. less wheel guar

Sanders, Polishers—Air

PSA 307L Model: 7 in. disc sander, 5900 rpm, dle thread, weight: $5\frac{3}{8}$ lbs.

PPA 309L Model: Polisher for use with 9 in bonnet, 950 rpm, $\frac{5}{8}$ -11 spindle thread, weight:

Drills—Air

PD 103L Model: 2600 rpm, $\frac{1}{4}$ in. chuck capacit drill capacity, weight: 14 oz.

PD 204P Model: Pistol grip, 2200 rpm, $\frac{1}{4}$ in. dri weight: 2 lbs.

PD 204L Model: Same as PD 204P except leve weight: $1\frac{3}{4}$ lbs.

REMINGTON ARMS COMPANY, INC.

PETERS CARTRIDGE DIVISION

PD 304P Model: Pistol trigger, 2500 rpm, $\frac{1}{4}$ in. heavy duty, weight: 3 lbs.

PD 304L Model: Same as PD 304P except lever throttle.

PD 326P Model: Pistol grip, 1400 rpm, $\frac{3}{8}$ in. heavy duty, weight: $4\frac{5}{8}$ lbs.

PD 328P Model: Pistol grip, 575 rpm, $\frac{1}{2}$ in. weight: $4\frac{5}{8}$ lbs.

PD 508G Model: Grip handle trigger, 950 rpm, heavy duty, $\frac{1}{2}$ in. capacity, weight: $9\frac{1}{2}$ lbs.

PDA 224L Model: Angle drill, 1600 rpm, $\frac{1}{4}$ in. capacity, weight: $1\frac{7}{8}$ lbs.

PDA 318L Model: Angle drill, 950 rpm, $\frac{1}{2}$ in. capacity, weight: $5\frac{1}{4}$ lbs.

Screwdrivers—Air

PSD 103L Model: Adjustable ball clutch, 2600 rpm, maximum capacity No. 8 free running screws, No. 5 heavy tapping screws with bit and finder, weight: $1\frac{1}{8}$ lbs., non-reversible.

PSD 204P Model: Adjustable ball type clutch, 2000 rpm capacity, $\frac{1}{4}$ in. free running screws, No. 10 heavy tapping screws furnished with bit and finder, weight: 2 lbs., Pistol grip, non-reversible.

PSD 204L Model: Same as PSD 204P except with lever throttle.

PSD 306P Model: Adjustable ratchet type clutch, 2500 rpm, maximum capacity, $\frac{3}{8}$ in. free running screw, weight: 4 lbs., pistol grip, non-reversible.

PSDR 204P Model: Adjustable ball type clutch, 1500 rpm maximum capacity, $\frac{1}{4}$ in. free running screws, No. 10 heavy tapping screw, weight: $2\frac{7}{16}$ lbs., reversible, furnished with bit and finder.

PSDR 306P Model: Adjustable ratchet type clutch, 2500 rpm capacity, $\frac{3}{8}$ in. free running screw, weight: $4\frac{1}{4}$ lbs., reversible, furnished with bit and finder.

Right Angle Nut Setters—Air

PNA 316L Model: 950 rpm, $\frac{1}{2}$ in. square drive spindle, $\frac{3}{8}$ in. bolt capacity, weight: 4 lbs.

PETERS CARTRIDGE DIVISION

GENERAL OFFICE: Bridgeport 2, Connecticut

BRANCH OFFICES:

Berkeley 2, California
Boston Office
Chicago 3, Illinois
Cleveland 14, Ohio
Dallas 1, Texas
Greensboro, North Carolina
Jacksonville 7, Florida
Memphis 3, Tennessee
Minneapolis 3, Minnesota
New York Office
Pittsburgh 22, Pennsylvania
St. Louis 1, Missouri
Salt Lake City 11, Utah

2735 San Pablo Avenue
939 Barnum Avenue; Bridgeport 2, Conn.
7 South Dearborn Street
1308 Union Commerce Building
1241 National Building
517 Jefferson Building
1603 Prudential Building, 841 Miami Road
1701 Sterick Building
614 Plymouth Building
939 Barnum Avenue; Bridgeport 2, Conn.
2001 First National Bank Building
1810 Arcade Building
909 Walker Bank Building

THornwall 8-5514
EDison 6-3366
STate 2-7781
PRospect 1-7804
Riverside 2-6908
BRoadway 2-6879
FLanders 9-4252
JAckson 6-5326
FEderal 3-5800
EDison 6-5091
GRant 1-3076
MAin 1-8622
ELgin 5-8686

PLANT:

Bridgeport, Connecticut

PRODUCTS

PETERS AMMUNITION

Shotgun Shells with "Kleanbore" Priming

Peters "High Velocity" Shells—Shotgun: Blue color; Peters Flat-Top Crimp; 10, 12, 16, 20, 28 and 410 gauges (10 and 410 gauges in roll crimp only). Loaded with progressive-burning powder. Thoroughly waterproof. Extra speed, uniform pattern, long range power. Also in standard length ($2\frac{3}{4}$ -in.) Magnum and extra length 3-in. shells. USE: For maximum long range game shooting.

"High Velocity" Buckshot Loads: 12, 16 and 20 gauges. USE: For large game and police duty.

"High Velocity" Slugs—Rifled: 12, 16, 20, 28 and 410 gauges. USE: Shells loaded with rifled slugs are used principally on deer and bear in states where rifles are prohibited.

"Victor" Shotgun Shells: Dark red color; 12, 16 and 20 gauges with the Peters Crimp. A quality shotgun shell at a popular price. USE: For field shooting.

"Victor" Spreader Loads: 12, 16 and 20 gauges. Shot is separated into cells by wads between layers of shot to secure open patterns. USE: For thicket or close range shooting.

REMINGTON ARMS COMPANY, INC.

Target Loads: Blue color; 12, 16 and 20 gauges. **USE:** For skeet and trapshooting.

Peters Rim Fire 22 Caliber Cartridges with "Kleanbore" Priming

Peters Match 22 Caliber Rim Fire Cartridges: Long rifle cartridges loaded with smokeless powder to standard velocities and designed especially for superfine accuracy. **USE:** Particularly recommended for rifle target shooting.

"High Velocity" Cartridges—22 Caliber Rim Fire: Developed for long range and great penetrating power. **USE:** For small game and pest shooting.

"High Velocity" Cartridges—22 Caliber Rim Fire—Shot: Long rifle shot cartridges loaded with No. 12 shot. **USE:** For small game, miniature skeet, and trapshooting.

"Thunderbolt" Cartridges—22 Caliber Rim Fire—Short: Special composition bullet; high muzzle velocity. **USE:** For informal shooting and medium-range small game hunting.

"Krumble Ball" Cartridges—New and Improved 22 Caliber Rim Fire—Gallery: Special composition bullet. Nontoxic; pulverizes on impact. **USE:** For gallery shooting.

Standard Velocity 22 Caliber Rim Fire Cartridges: For the shooter who prefers regular velocity ammunition. **USE:** For hunting small game or target shooting.

"Target" Cartridges—22 Caliber Rim Fire: Standard velocity cartridges designed for fine accuracy. **USE:** For rifle and pistol target shooting.

PETERS CARTRIDGE

Peters "Oil-Tite" Cartridges—Center with "Kleanbore" Priming

Cartridges loaded with bullets best adapted for respective uses and manufactured in all standard calibers. Highest velocity and positive ignition. Powder protected against deterioration through oil moisture by special process. **USE:** For medium and big game hunting and target shooting.

"High Velocity" Cartridges—Center Fire available in a wide variety of center fire calibers for medium and big game hunting.

Peters Center Fire Rifle Cartridge with "Core-Lokt" Bullets

Made in selected big game rifle calibers. Provides uniform expansion with minimum disintegration. Tremendous knockdown power. **USE:** For all North American big game.

Peters "Oil-Tite" Cartridges—Pistol and with "Kleanbore" Priming

Cartridges in all standard calibers. "Oil-Tite" protection against oil in chamber or magazine. Excellent for target shooting. Powerful, accurate, penetrates, and non-corrosive "Kleanbore" priming. **USE:** For pest and target shooting.

**"Highway Patrol" Cartridges—Center Fire
and Revolver:** Available in 38 Special and 44 calibers. Distinguished by metal cased, metal bullet. **USE:** Law enforcement.

Peters Blank Cartridges

Made in rim fire and center fire calibers for rifle and pistols. Blank cartridges used largely for theatrical events, theater productions and sound effects.

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SURPLUS MATERIALS DIVISION

GENERAL OFFICE: Nemours Building Wilmington 98, Delaware

TELEPHONE

PRospect 4-3700

PRODUCTS

Buildings:

All kinds for dismantlement

Chemicals:

Surplus Chemicals, Solvents, Acids, Pigments, Special Organic Compounds, Laboratory Reagents

Construction Tools and Materials:

All kinds—new and used

Containers:

Bags, Barrels, Bottles, Cartons, Drums (Steel and Fiber), Kegs, Pails, Compressed Gas Cylinders.

Electrical Supplies:

Conduit, Condulets, Fuses, Motors, Rheostats, Starters, Switches, Wire—new and used

Furniture:

Office and Hotel Furniture and Equipment, Typewriters and Business Machines—used

Machinery and Equipment:

All kinds—new and used
Automotive (Cars and Trucks), Factory Trucks and Railroad Equipment
Boilers, Engines, Turbines and Steam Power Equipment
Centrifuges, Filters and Dust Collectors
Compressors (Air and Refrigeration) and Pumps
Construction Equipment (Cranes, Tractors and Miscellaneous Heavy Equipment)
Drives
Drying Equipment
Electrical Equipment (miscellaneous) and Transformers
Fans, Blowers, Exhausters and Ventilators
Heaters, Condensers, Exchangers and Coolers
Hoists, Lifts and Conveyors
Instruments and Metering Equipment

Machine Tools and Shop Equipment

Mills, Grinders, Crushers, Mixers and Cutters
Motors, Gear Motors, Motor Reducers and M.G. Sets
Office, Laboratory and Change House Equipment
Safety and Fire Protection Equipment
Scales
Spare Parts
Tanks, Kettles, Pressure Vessels, Stills and Columns
Textile Equipment
Vibrators, Shakers and Feeders

Metal Scrap—Ferrous and Nonferrous:

Aluminum, Brass, Bronze, Copper, Iron, Lead, Monel, Nickel, Stainless Steel, Steel, Tin, Zinc

Mill Supplies:

General Industrial Maintenance Materials—new and used

Paper Stock, Cloth and Rags:

Fabrics, Rags, Paper, Rope Scrap and Used Filter Cloth

Pipe, Valves and Fittings:

All kinds—new and used

Residues and Sludges:

By-Products of All Descriptions; Recovered Acids, Solvents, Salts, Lime, Cinders, Graphite, Metallic Residues

Specialties:

Spools, Bobbins, Pirns and Cones; Experimental lots and seconds of some Company products; Rubber; Plastics

Stainless Steel:

Shapes, Pipe, Sheets, Valves—new and used

Steel Products:

Structural, Bars, Plates, Shafting, Sheets, Rails, Cable—new and used

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