PRODUCTS

0557533

TOWOLDMON0041268
WATER_PCB-00032314

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Market[illegible] Service Dept.
[illegible] St. Louis, Mo.

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Sales Promotion Branch, St. Louis 66, Mo.

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ELECTRONIC MATERIALS

COOLANOL* 35

ORGANIC DIVISION

Coolanol 35 is a coolant-dielectric fluid for cooling electronic equipment in ground, shipboard and airborne applications. Chemically and operationally similar to *Coolanol* 45, *Coolanol* 35 is especially suited for low-temperature applications, with an operating range of −60° to 400°F.

COOLANOL* 45 DIELECTRIC COOLANT FOR ELECTRONIC EQUIPMENT

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid.

PROPERTIES: A clear, amber liquid with dielectric, heat transfer and hydraulic properties—over a −65°F. to 400 F. temperature range.

USES: Dielectric coolant for both airborne and ground environmental electronic equipment. Also utilized in hydraulic applications in electronic equipment.

SHIPPING INFORMATION: Chemicals NOIBN. 1-qt. cans; 1-gal. cans; 5-gal. cans; 54-gal. drums.

GALLIUM ARSENIDE *Electronic Grade*

INORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Polycrystal ingots with semi-circular cross section approximately 3.0 centimeters wide and weighing several hundred grams.

PURITY: Available in various ranges of carrier concentrations, resistivities, mobilities and Hall coefficients. Also available doped to various levels and as gradient freeze, Czochralski, and float-zone single crystal.

USES: Ultra-high purity gallium arsenide for use in the manufacture of electronic semi-conductor devices such as rectifiers, transistors, standard diodes and tunnel diodes.

SHIPPING INFORMATION: Special containers according to form and quantity. Individual ingots packaged in polyethylene sleeves with data sheet.

INDIUM ARSENIDE—ELECTRONIC GRADE

INORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Polycrystal ingots with rectangular cross section approximately 1.5 x 2.0 centimeters and weighing several hundred grams.

PURITY: Available in various ranges of carrier concentrations, resistivities, mobilities and Hall coefficients.

USES: Ultra-high purity indium arsenide for use in the manufacture of electronic semi-conductor devices such as Hall generators, standard diodes and tunnel diodes.

SHIPPING INFORMATION: Special containers according to form and quantity. Individual ingots packaged in polyethylene sleeves with data sheet.

INDIUM PHOSPHIDE *Electronic Grade*

INORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Polycrystal ingots with semi-circular cross section approximately 2.0 centimeters wide and weighing approximately 50 grams.

PURITY: Available in various ranges of carrier concentrations, resistivities, mobilities and Hall coefficients.

USES: Ultra-high purity indium phosphide for use in the manufacture of electronic semi-conductor devices such as rectifiers, transistors, standard diodes and tunnel diodes.

SHIPPING INFORMATION: Special containers according to form and quantity. Individual ingots packaged in polyethylene sleeves with data sheet.

OS-45* TYPE III HIGH TEMPERATURE AIRCRAFT HYDRAULIC FLUID.

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid

PROPERTIES: A clear, amber liquid with outstanding hydraulic properties over a −65 F. to 400 F. temperature range.

USES: [illegible] for both airborne and ground environmental application.

SHIPPING INFORMATION: Chemicals NOIBN. 1-qt. cans; 1-gal. cans; 5-gal. cans; 50-gal. drums.

OS-45* TYPE IV HIGH TEMPERATURE AIRCRAFT HYDRAULIC FLUID.

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid

PROPERTIES: A clear, amber liquid with outstanding hydraulic properties over a −65°F. to 550 F. temperature range.

USES: High temperature hydraulic for both airborne and ground environmental applications.

SHIPPING INFORMATION: Chemicals NOIBN. 1-qt. cans; 1-gal. cans; 5-gal. cans; 54-gal. drums.

SILICON—ELECTRONIC GRADE

INORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Single-crystal cylindrical rods. Polycrystal rods or chunks, slices or Lapped wafers.

PURITY: Less than 0.2 parts per billion base boron content.

GENERAL INFORMATION: Ultra-high purity silicon for use in the manufacture of electronic semi-conductor devices such as diodes, rectifiers and transistors. Available in various electrical resistivity ranges, conductivity types, diameters and lengths according to individual customer requirements.

USES: Single-crystal rods used directly in the manufacture of semi-conductor devices, polycrystal rods used for zone-refining to produce single-crystal rods and fragmental chunks used for single-crystal growing techniques.

SHIPPING INFORMATION: Silicon Metal, Electronic Grade. Special containers according to form and quantity. Individual rods packaged in polyethylene sleeves with data sheet.

FUNCTIONAL FLUIDS: AIRBORNE, INDUSTRIAL, SPECIALTY

AIRBORNE AND SPECIALTY

AROCLOR* FLUIDS

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquids, resins or solids.

PROPERTIES: Chlorinated aromatic hydrocarbons varying from water-white mobile liquids and pale yellow viscous oils to light amber resins and opaque crystalline solids; refractive indices above 1.6125. In general are stable on long heating at 150°C.; not affected by boiling with sodium hydroxide solution. The light oils can be distilled at atmospheric pressure without appreciable decomposition and the viscous oils and resins distill readily under vacuum. Viscous oils and resins almost odorless and tasteless at ordinary temperatures.

GENERAL INFORMATION: Most *Arochlor* materials flux readily with resinous and pitch-like materials to give products having a decreased fire hazard. Viscous oils and resins do not support combustion when heated above even at their boiling points; ignition temperatures above 500 C. All have excellent electrical characteristics, high dielectric strength and resistivity, low power factor; certain of the liquids have a high dielectric constant as compared with mineral oils. The oils and resins readily soluble in most common organic solvents and drying oils; hard crystalline materials are, in general, less soluble; all are insoluble in water. The more viscous oils and resins have excellent adhesive properties. All forms are thermoplastic, apparently undergo no further condensation or hardening upon repeated melting and cooling. Nondrying, when exposed to air no noticeable oxidation or hardening takes place. The clear resins have rather low vaporization losses; at 65 S C. 150 F.) less than 0.01 gm. per sq. in. of surface per month.

USES: Liquid *Arochlors* are used as dielectrics for condensers or capacitors and transformers. Solid *Arochlors* are used to impregnate carbon resistors, and when combined with other plastic materials the *Arochlors* are excellent sealers or impregnating agents for a variety of electrical apparatus, wire coverings, [illegible] in cellulose acetate butyrate, to control [illegible] in oils and as plasticizer and resin extender for rubber-base paints, including chlorinated rubber styrene, butadiene and

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vinyls. In these protective coatings for metal, masonry and wood, *Arochlors* impart adhesion, resistance against moisture, acids, alkalies or other corrosive influence and they improve electrical insulating properties, durability and restrict flammability. They function as waters in waterproofing compounds, wood preservative formulations, caulking compounds and putty. Employed in synthetic floor tiles and resilient products, Arochlors, in combination with asphaltic materials, the *Arochlors* plasticize the asphalt, reduce flammability and improve durability. For printing inks, in precision-casting waxes, floor waxes and other wax products. Used widely in synthetic adhesives including ethyl cellulose, styrene, vinyls and rubber-base materials. *Arochlors* improve adhesion and resistance against corrosive influences. Selected liquid *Arochlors* are used as nonflammable hydraulic fluids for die-casting machines. They are used as actuating media for thermostats. *Arochlors* are useful in cutting oils as extreme pressure lubricants, as high-temperature lubricants and as grinding fluids. *Arochlor* 1248 is employed as a nonflammable, liquid-phase, heat-transfer medium for continuous operation in closed systems at temperatures up to 300°C. and at normal atmospheric pressure.

SHIPPING INFORMATION: Resin Synthetic NOIBN without filler, 600-lb. steel drums; 500-lb. net fiber drums; 100-lb. net bags.

COOLANOL 45* DIELECTRIC COOLANT FOR ELECTRONIC EQUIPMENT

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid.

PROPERTIES: A clear, amber liquid with dielectric, heat transfer and hydraulic properties—over a −65°F. to 400°F. temperature range.

USES: Dielectric coolant for both airborne and ground environmental electronic equipment. Also utilized in hydraulic applications in electronic equipment.

SHIPPING INFORMATION: Chemicals NOIBN, 1-qt. cans; 1-gal. cans; 5-gal. cans; 54-gal. drums.

OS-45* TYPE III HIGH TEMPERATURE AIRCRAFT HYDRAULIC FLUID.

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid

PROPERTIES: A clear, amber liquid with outstanding hydraulic properties over a −65°F. to 400°F. temperature range.

USES: High temperature hydraulics for both airborne and ground environmental applications.

SHIPPING INFORMATION: Chemicals NOIBN, 1-qt. cans; 1-gal. cans; 5-gal. cans; 54-gal. drums.

OS-45* TYPE 'V HIGH TEMPERATURE AIRCRAFT HYDRAULIC FLUID.

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid

PROPERTIES: A clear, amber liquid with outstanding hydraulic properties over a −65°F. to 550°F. temperature range.

USES: High temperature hydraulic for both airborne and ground environmental applications.

SHIPPING INFORMATION: Chemicals NOIBN, 1-qt. cans; 1-gal. cans; 5-gal. cans; 54-gal. drums.

SKYDROL* 500-A FIRE RESISTANT JET AIRCRAFT HYDRAULIC FLUID

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid.

TYPICAL ANALYSIS: Moisture .20% max.; neutralization number 0.10 max.; Sp. Gr. 25° 25°C. 1.000-1.060; viscosity at 100°F. 11.7 ±0.4 cs.

PROPERTIES: A clear, purple, fire-resistant hydraulic fluid with excellent lubricity. Operational at −65°F.

USES: Hydraulic fluid for hydraulic systems in turbo jet and turbo prop aircraft, which must be operational at −65°F.

SHIPPING INFORMATION: Hydraulic system fluids other than petroleum. 1-qt. cans; 1-gal. cans; 5-gal. cans; 54-gal. drums.

SKYDROL* 7000 FIRE RESISTANT AIRCRAFT HYDRAULIC FLUID

ORGANIC DIVISION—LITERATURE AVAILABLE

TYPICAL ANALYSIS: Cloud point below 0°F.; moisture 0.25% max.; neutralization number 0.2 max.; Sp. Gr. 1.080 to 1.086 at 25° 25 C.; pour point −70°F. or lower.

PROPERTIES: A [illegible] fire-resistant hydraulic fluid with excellent lubricity, stability, non-corrosiveness, excellent viscosity-temperature characteristics, and resistance to oxidation.

USES: Hydraulic fluid in aircraft cabin superchargers, expansion turbines for air-conditioning systems and the aircraft hydraulic system itself.

SHIPPING INFORMATION: Hydraulic system fluids other than petroleum, 1-qt. cans; 1-gal. cans, 5-gal cans, 54 gal drums.

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PYDRAUL* AC COMPRESSOR LUBRICANT

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid.

TYPICAL ANALYSIS: Viscosity at 100°F.—405 SSU, 210°F.—47 SSU; moisture—0.15% max.; neutralization number (acid)—0.15 max.; sp. gr. at 25° 25°C.—1.340-1.360.

PROPERTIES: A light amber, stable straight synthetic fire-resistant air compressor lubricant with excellent lubricity, non-corrosive, extremely stable to heat and air; designed as a shear stable fluid with a two-fold purpose to eliminate carbon deposits on valves and cylinder walls, thereby reducing maintenance costs; and to provide safety from air compressor fires and explosions.

USES: A fire and explosion resistant lubricant for air compressors, such as those used in air separation plant, inert air systems, ammonia synthesis plants, [illegible] booster stations and other type processing plants.

SHIPPING INFORMATION: Chemicals NOIBN, 54-gal. steel drums; 5-gal. cans.

PYDRAUL* F-9 HYDRAULIC FLUID

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid.

TYPICAL ANALYSIS: Viscosity at 100°F.—215 SSU, 210°F.—45 SSU; moisture—0.20% max.; neutralization number (acid)—0.15 max.; sp. gr. at 25° 25°C.—1.270-1.289.

PROPERTIES: A light, amber, cloudy liquid; straight synthetic fire resistant fluid with excellent lubricity and pumping characteristics; non-corrosive, extremely stable to both heat and air; recoverable by filtration; designed for long service life.

USES: Fire resistant hydraulic fluid in die-casting machines, hydraulic presses, automatic welding machines and similar applications requiring a medium viscosity fluid.

SHIPPING INFORMATION: Hydraulic system fluids other than petroleum, 55-gal. steel drums and 5-gal. cans.

PYDRAUL* 60 HYDRAULIC FLUID

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid.

TYPICAL ANALYSIS: Viscosity at 100°F.—60 SSU, 210°F.—34 SSU; moisture—0.10% max.; neutralization number (acid)—0.12 max.; sp. gr. at 25° 25°C.—1.088-1.091.

PROPERTIES: A clear blue, oily, straight synthetic fire resistant hydraulic fluid with excellent lubricating and pumping characteristics; highly resistant to mechanical shear and breakdown; inert to common metals of construction; an excellent fluid for low temperature operations.

USES: A fire resistant hydraulic fluid in systems requiring extremely low viscosity. Low viscosity is excellent for high speed, precision equipment such as machine tools. Low temperature properties suited for many outdoor operations.

SHIPPING INFORMATION: Hydraulic system fluids other than petroleum. 54-gal. steel drums and 5-gal. cans.

PYDRAUL* 150 HYDRAULIC FLUID

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid.

TYPICAL ANALYSIS: Viscosity at 100°F.—150 SSU, 210°F.—50 SSU; moisture—0.15% max.; neutralization number (acid)—0.17 max.; s. gr. at 25° 25°C.—1.119-1.135.

PROPERTIES: A light, amber, straight synthetic fire resistant hydraulic fluid of low viscosity with excellent lubricity and low temperature pumping characteristics; non-corrosive, stable to heat and air.

USES: Fire resistant hydraulic fluid in equipment which operates at levels of low temperatures part or all of the time, such as Askania Regulator Equipment, fork-lift trucks and similar equipment with cold weather fluid requirements.

SHIPPING INFORMATION: Hydraulic system fluids other than petroleum. 55-gal. steel drums. 5 gal. cans.

PYDRAUL* 625 HYDRAULIC FLUID

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid.

TYPICAL ANALYSIS: Viscosity at 100°F.—625 SSU, 210°F.—45 SSU; moisture—0.15% max.; neutralization number (acid)—0.15 max.; sp. gr. at 25° 25°C.—1.340-1.370.

PROPERTIES: A light, amber, straight synthetic [illegible] fluid with excellent lubricity and pumping characteristics; non-corrosive, extremely stable to heat and air; a shear, stable fluid designed for long service life.

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USES: Manufacture of anti-oxidants, anti-ozonants, gasoline gum inhibitors; medical compounds for poultry, dyestuffs, color and pigments.

CONTAINERS: Code 30 ICC 21B lever pak with flowed in rubber gasket. Gross weight 50%-lbs. approx.

SHIPPING CLASSIFICATION: para-Nitroaniline -Dye Intermediate NOIBN).

ortho-PHENETIDINE

Also known as ortho-amino-phenylethyl ether, ortho-aminophenetole and 2-amino-ethoxybenzene.

ORGANIC DIVISION

MOLECULAR WEIGHT: 137.18

STANDARD FORM: Liquid.

SPECIFICATIONS: Dark red liquid; crystallizing point −4.0°C. min. Distillation range: first drop 231.0 C. min.; 95% (1-96 ml) 2.0°C. max.; dry point 234.0°C. max.; solubility in HCl complete.

USES: An intermediate in the production of dyestuffs. CAUTION: This product is toxic. Avoid breathing its vapors and contact with skin.

SHIPPING INFORMATION: Dye Intermediate NOIBN. "Poison" label required. 475-lb. steel drums.

para-PHENETIDINE

Also known as para-aminophenyl-ethyl-ethyl ether, para aminophenetole and 4-amino-ethoxybenzene.

ORGANIC DIVISION

MOLECULAR WEIGHT: 137.18

STANDARD FORM: Liquid.

SPECIFICATIONS: Light yellow liquid; crystallizing point 4.0°C. min.; distillation range: first drop 248.0 C. min.; 95% (1-96 ml) 2.0 C. max.; dry point 251.0 C. max.; solution in HCl opalescent max.

USES: An intermediate in the production of dyestuffs and pharmaceuticals. CAUTION: This product is toxic. Avoid breathing its vapors and avoid contact with the skin.

SHIPPING INFORMATION: Dye Intermediate NOIBN. "Poison" label required. 450-lb. steel drums.

FLAVORINGS

ETHAVAN *Ethylvanillin.*

ORGANIC DIVISION—LITERATURE AVAILABLE

MOLECULAR WEIGHT: 166.17

STANDARD FORM: Fine crystalline needles.

SPECIFICATIONS: Fine white crystalline needles; completely soluble in ethyl alcohol 95% (1:2); ash 0.03% max.; M.P. 76.5°C. min.

USES: A flavoring and aromatic. Has a flavor similar to that of vanillin but not identical with it. The relative flavoring strength of Ethavan approximates three times that of vanillin.

SHIPPING INFORMATION: Chemicals NOIBN. 100-lb. fiber drums; 25-lb. fiber drums.

METHYL SALICYLATE U.S.P.

ORGANIC DIVISION—LITERATURE AVAILABLE

MOLECULAR WEIGHT: 152.14

STANDARD FORM: Water-white liquid.

SPECIFICATIONS: Clear, colorless liquid; assay 98.0% min.; Sp. Gr. 1.180-1.185 at 25°/25°C.; conforms to U.S.P. test for heavy metals and acidity; refractive index at 20°C. 1.5350-1.5380.

USES: Pharmaceutical product; disinfectant; flavoring agent in foodstuffs and beverages; odorant in printing inks and insecticides.

SHIPPING INFORMATION: Methyl Salicylate (Essential Oil NOIBN). 500-lb. and 50-lb. drums.

METHYL SALICYLATE U.S.P. *Synthetic.*

ORGANIC DIVISION—LITERATURE AVAILABLE

SPECIFICATIONS: Colorless liquid; assay essentially 100%; color APHA 10 max.; odor, characteristic; refractive index at 20°C. 1.568; specific gravity at 25°/25°C. 1.180 to 1.185; solubility in 70% alcohol (1:7), complete; solubility in Normal Potassium Hydroxide 1:10, Turbidity, none; color, faint yellow, max.; heavy metals, meets USP; weight per gallon, 9.9 pounds; meets all requirements of USP.

USES: Methyl Salicylate U.S.P. Synthetic is widely used in sprays, as well as various kinds of insecticides, disinfectants, mouth washes, perfumes, pharmaceuticals, in masking gummed tape and paper, as an odor principle in polishes, printing and copying inks, and in covering disagreeable odors of [illegible] It is also used as a flavoring [illegible]

SHIPPING INFORMATION: 500-lb. drums returnable; 500 and 50-lb. drums non-returnable. Methyl Salicylate (Essential Oil NOIBN).

METHYL SALICYLATE U.S.P. *Synthetic.*

ORGANIC DIVISION—LITERATURE AVAILABLE

SPECIFICATIONS: Colorless liquid; assay [illegible] APHA 10 max.; odor, characteristic; refractive index at 20°C. 1.535 to 1.540; Sp. Gr. at 25°/25°C. 1.180 to 1.185; 20 ppm max.; meets all requirements of U.S.P.

USES: Widely used in sprays; insecticides, [illegible] perfumes; pharmaceuticals; in masking [illegible] paper; as an odor principle in polishes, [illegible] inks, pastes and glues; and as a flavoring agent [illegible] lozenges, chewing gum and root beer.

SHIPPING INFORMATION: Methyl Salicylate [illegible] NOIBN) 500-lb. drums—returnable; 500 and 50-lb. non-returnable.

SACCHARIN

Also known as saccharin insoluble, and orthosulfobenzimide.

ORGANIC DIVISION—LITERATURE AVAILABLE

MOLECULAR WEIGHT: 183.18

STANDARD FORM: Powder and coarse powder.

SPECIFICATIONS: White crystalline powder; [illegible] M.P. 227.0°C. min.; moisture 0.50% max.; [illegible] Na_2CO_3 (1.5) complete; ash 0.2% max.; heavy metals max.

USES: Sweetener for tooth pastes, mouth washes, [illegible] ceutical preparations. Approximately 500 times the sweetening power of sugar.

SHIPPING INFORMATION: Chemicals NOIBN. 100-lb. [illegible]

VANILLIN

Vanillin U. S. P.; also known as methylprotocatechuic aldehyde and 3-hydroxybenzaldehyde.

ORGANIC DIVISION—LITERATURE AVAILABLE

MOLECULAR WEIGHT: 152.14

STANDARD FORM: Fine crystals.

SPECIFICATIONS: Fine, white crystalline needles; [illegible] min.; no foreign flavor in sugar solution; [illegible] max.; solubility in alcohol (1:2) complete.

USES: As a flavoring agent in foodstuffs and [illegible] an odorant in rubber.

SHIPPING INFORMATION: Chemicals NOIBN. 100-[illegible] 25-lb. fiber drums.

[illegible]

ACL*

INORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Powder and granular. A series of [illegible] ganic chlorine liberating compounds, used as [illegible] dients in household and commercial [illegible] scouring cleansers, machine diswashing compounds [illegible] ing agents, etc.

PRODUCT DESCRIPTION:

ACL Grade	Chemical Name
85	Trichloroisocyanuric Acid
70	Dichloroisocyanuric Acid
59	Potassium dichloroisocyanurate

SHIPPING INFORMATION: Fiber drums with [illegible] liner. ACL*-85 and ACL*-59 270-lbs. net. ACL*-[illegible]

AROCLOR* POLYCHLORINATED POLYPHENYLS

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquids, resins or solids.

PROPERTIES: Chlorinated aromatic hydrocarbons; water-white mobile liquids and pale [illegible] light amber resins and opaque crystalline [illegible] indices above 1.6125. In general are stable [illegible] at 150°C.; not affected by boiling with [illegible] solution. The liquid oils can be [illegible] oils and resins distill readily [illegible] and resins almost odorless and tasteless at [illegible] peratures.

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GENERAL INFORMATION: Most *Aroclor* materials flux readily with resinous and pitch-like materials to give products having a decreased fire hazard. Viscous oils and resins do not support combustion when heated alone even at their boiling points (temperatures above 360°C.). All have excellent electrical dielectric properties. Both dielectric strength and resistivity are high, power factor, certain of the liquids have a high dielectric constant as compared with mineral oils. The oils and resins easily soluble in most common organic solvents and drying oils; hard crystalline materials are, in general, less soluble; all are insoluble in water. The more viscous oils and resins have excellent adhesive properties. All forms are thermoplastic, apparently undergo no further condensation or hardening upon repeated melting and cooling. Nonfoaming; when exposed to air no noticeable oxidation or hardening takes place. The clear resins have rather low vaporization losses; at 65.8°C. (150°F.) less than 0.01 gm. per sq. in. of surface per month.

USES: Liquid *Aroclors* are used as dielectrics for condensers or capacitors and transformers. Solid *Aroclors* are used to impregnate carbon resistors, and when combined with other plastic materials, the *Aroclors* are excellent sealers or impregnating agents for a variety of electrical apparatus, wire coatings and tape. *Aroclors* are used as plasticizers and resins in lacquers including nitrocellulose, ethyl cellulose and cellulose acetate butyrate; to extend varnish resins and oils and as plasticizer and resin extenders for rubber-base paints, including chlorinated rubber styrene, butadiene and vinyls. In these protective coatings for metal, masonry and wood, *Aroclors* impart adhesion, resistance against moisture, acids, alkalies or other corrosive influence and they improve electrical insulating properties, durability, and resistance flammability. They function as sealers in water proofing compounds, wood preservative formulations, caulking compounds and putty. Employed in asphaltic sizing materials and cellulose products impregnated or laminated with asphaltic materials, the *Aroclors* plasticize the asphalt, reduce flammability and improve durability. For printing inks; in precision casting waxes, floor waxes and other wax products. Used widely in synthetic adhesives including ethyl cellulose, styrene, vinyls and rubber-base materials, *Aroclors* improve adhesion and resistance against corrosive influences. Selected liquid *Aroclors* are used as nonflammable hydraulic fluids for die-casting machines. They are used as actuating media for thermostats. *Aroclors* are useful in cutting oils as extreme pressure lubricants, as high-temperature lubricants and as grinding fluids. *Aroclor* 1248 is employed as a nonflammable, liquid-phase, heat-transfer medium for continuous operation in closed systems at temperatures up to 300°C. and at normal atmospheric pressure.

SHIPPING INFORMATION: Resin Synthetic NOIBN without filler, 600-lb. steel drums; 500-lb. net fiber drums; 100-lb. net bags.

BENZYL CHLORIDE *Also known as alpha-chlorotoluene.*

ORGANIC DIVISION—LITERATURE AVAILABLE

FORMULA: C_7H_7Cl



MOLECULAR WEIGHT: 126.58

STANDARD FORM: Liquid.

SPECIFICATIONS: Clear to slightly turbid, colorless to yellow liquid; Sp. Gr. 1.105-1.110 at 15.5°/15.5°C. Boiling range at 760 mm 2°C. max. including 179.4°C.

USES: A highly reactive aralkyl halide used in the production of the following: dyestuffs; perfume bases such as benzyl alcohol, acetate and other esters; plasticizers; resins; wetting agents; fermicides; rubber accelerators; gasoline gum inhibitors; benzyl benzoate; and pharmaceuticals. CAUTION: This product irritates the skin and eyes; avoid skin contact and breathing its vapors. Benzyl Chloride is highly reactive with metals and their derivatives, especially iron, and due care must be exercised in handling, storage and processing of Benzyl Chloride.

SHIPPING INFORMATION: Chemicals NOIBN. Corrosive liquid (white label required). 475-lb. nickel drums; 2000-gal. 2-compartment nickel tank trucks.

BENZYL CHLORIDE, STABILIZED

ORGANIC DIVISION—LITERATURE AVAILABLE

FORMULA: C_7H_7Cl



$+ Na_2CO_3 + H_2O$

MOLECULAR WEIGHT: 126.58

STANDARD FORM: Liquid.

SPECIFICATIONS (for material recovered from stabilized solution): Colorless to yellow liquid. Sp. Gr. 1.105-1.110 at 15.5°/15.5°C.

PROPERTIES: This form of benzyl chloride is stabilized by the addition of 25 lbs. of 10% sodium carbonate solution to 450 lbs. of the chloride. The wet material is a milky-white emulsion from which a layer of water separates on standing. The bottom or top, depending upon the temperature and the concentration of Na_2CO_3. The concentration of Na_2CO_3 slowly decreases on standing.

USES: A highly reactive aralkyl halide used in the production of the following: dyestuffs; perfume bases such as benzyl alcohol, acetate and other esters; plasticizers; resins; wetting agents; fermicides; rubber accelerators; gasoline gum inhibitors; benzyl benzoate; and pharmaceuticals. CAUTION: This product irritates the skin and eyes; avoid skin contact and breathing its vapors. Benzyl Chloride is highly reactive with metals and their derivatives, especially iron, and due care must be exercised in handling, storage and processing.

SHIPPING INFORMATION: Chemicals NOIBN. Corrosive liquid (white label required). 475-lb. steel drums.

CHLORAMINE-T, N. F.

Also known as N-sodium-N-chloro para-toluenesulfonamide.

ORGANIC DIVISION—LITERATURE AVAILABLE

MOLECULAR WEIGHT: 281.70

STANDARD FORM: Crystalline powder.

SPECIFICATIONS: White or faintly yellow powder or crystals; solubility in water (2.5% complete; moisture 18.0-20.0%; available chlorine 24.5-25.2%; assay 97.5% min.; trace max. retained on 10 mesh; 15% retained on 35 mesh.

CHLORINE-CAUSTIC SODA, CAUSTIC POTASH AND SODIUM SULFIDE PLANTS—Complete manufacturing [illegible] for De Nora Mercury Cells offered by Engineering Sales Department.

USES: A water-soluble, chlorine-bearing powder used as a germicide, disinfectant and deodorant.

SHIPPING INFORMATION: Disinfectant Other Than Medicinal NOIBN. 300-lb. fiber drums; 125-lb. lever-paks.

ortho-DICHLOROBENZENE

ORGANIC DIVISION—LITERATURE AVAILABLE

MOLECULAR WEIGHT: 147.01

STANDARD FORM: Liquid.

SPECIFICATIONS: Appearance, practically clear; Color, 30 APHA max.; Crystallizing Point, minus 7.0°C. max.; Distilling Range—first drop 177.7°C. min.—90% (91 ml.) 4.1°C. max.—dry point 188.5°C. max.

USES: Degreasing formulations; tar, grease, paint and carbon removers; spotting agents in dry cleaning; metal polishes; wool and felt scouring; insecticide formulations; and treating of sewage and garbage for odor control.

SHIPPING CLASSIFICATION: ortho-Dichlorobenzol. 55-gal., 18-gauge black iron drums. Gross Weight: 600-lb. approx.

ortho-NITROCHLOROBENZENE

Also known as ortho-chloronitrobenzene.

ORGANIC DIVISION—LITERATURE AVAILABLE

MOLECULAR WEIGHT: 157.56

STANDARD FORM: Cast solid.

SPECIFICATIONS: Green-yellow crystalline mass; crystallizing point 31.7°C.

USES: An intermediate in the synthesis of o-aminophenol (dyestuffs intermediate and photographic developer), dichlorobenzidine (chrome-dyestuffs intermediate), and many other organic intermediate chemicals; and a solvent in synthetic-petroleum processes. CAUTION: This material is toxic. Avoid breathing its vapors. Avoid contact with the skin. Toxicity reference: U. S. Public Health Bulletin No. 271 (1941).

SHIPPING INFORMATION: Dye Intermediate NOIBN "Poison" label required. 600-lb. steel drums; tank cars.

para-NITROCHLOROBENZENE

Also known as para-chloronitrobenzene.

ORGANIC DIVISION—LITERATURE AVAILABLE

MOLECULAR WEIGHT: 157.56

STANDARD FORM: Flakes.

SPECIFICATIONS: Light yellow flakes or crystalline mass; crystallizing point 82.3°C. min.

USES: In the manufacture of disodium-benzene meta-disulfonate; para-aminophenol; 2-chloro-5-nitrobenzene sulfonic acid; 2,6-dichloro-4-nitroaniline; and 2-amino-5-nitrobenzene sulfonic acid; pharmaceutical preparation; "Diasone" an agent for treatment of Hansen's disease (Abbott patent); and a variety of anti-oxidants and gum inhibitors. CAUTION: This product is toxic. Avoid breathing its vapors and avoid contact with the skin. Toxicity reference: U. S. Public Health Bulletin No. 271 (1941).

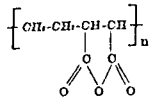
SHIPPING INFORMATION: Dye Intermediate NOIBN "Poison" label required. 325-lb. fiber drums.

TOWOLDMON0041276
WATER_PCB-00032322

DX-840 RESINS *(Ethylene Maleic Anhydride Copolymers)*

ORGANIC DIVISION—LITERATURE AVAILABLE

FORMULA:



STANDARD FORM. Fine water-soluble powders available as both straight-chain and cross-linked polymers in a variety of molecular weights.

PROPERTIES AND PERFORMANCE CHARACTERISTICS: The EMA resins are easily converted to the free-acid form; and to its sodium and amide-ammonium salts; and are readily reacted with alcohols and substituted alcohols and with amines to form esters and resins. By selecting the proper reactant, the following types of derivatives can be prepared: transparent film-formers, polymeric liquids, waxy solids and polyampholytes.

SUGGESTED USES: Beneficiation agent for clays used in oil-well drilling muds; stabilizers and flocculants in liquid detergent and cosmetic formulations; thickeners for water-based latex paints, textile sizes, textile print pastes and binders; suspending agents for ink pigments, thickener for aqueous resin systems, adhesives, binder for foundry cores, etc.

SHIPPING INFORMATION: Multiwall bags (50 lbs.). F. O. B. Texas City, Texas. Rail and Truck. Sizing NOIBN.

MALEIC ANHYDRIDE

ORGANIC DIVISION

MOLECULAR WEIGHT: 98.00

STANDARD FORM: Briquettes, fused mass.

SPECIFICATIONS: White briquettes or fused mass, crystallizing point (as produced) 52.5 C. min.; water solution (4 gms. in 10 ml): clear and colorless; assay 99.5% min.; color of melt 20 APHA max.

USES: Used alone or in combination with other acids in the manufacture of alkyd and polyester resins; a versatile intermediate for chemical synthesis. Also used for production of paper and textile sizes, agricultural chemicals and ester comonomers for internal plasticization.

SHIPPING INFORMATION: Maleic Anhydrides, 50-lb. bags; 250-lb. fiber drums; tank cars.

PHTHALIC ANHYDRIDE

ORGANIC DIVISION

MOLECULAR WEIGHT: 148.11

STANDARD FORM: White flakes or fused mass.

SPECIFICATIONS: Solubility in benzene (1:20) clear. Assay 99.5% min.; C.P. 130.8°C. min.

USES: An intermediate in the production of alkyd and polyester resins; dyestuffs; *pertaine* bases; *alcohol denaturants*; pharmaceuticals; and plasticizers such as octyl phthalate, dibutyl phthalate, dimethyl phthalate, diethyl phthalate and phthalyl glycollates.

SHIPPING INFORMATION: Phthalic Anhydride. 50-lb. bags; tank cars; tank trucks.

STYRENE MONOMER

See Page M-5/24 and M-5/44

VINYL CHLORIDE MONOMER

See Page M-5/19

UREA, INDUSTRIAL GRADE UNCOATED PELLETS

NORGANIC DIVISION

STANDARD FORM: Urea pelleted form without coating agent.

ANALYSIS:

Nitrogen (Min.)	46.0%
Moisture (Max.)	.5%
Biuret (Max.)	1.0%

USES: Urea Formaldehyde resins for adhesives, plastics, paper and textiles; chemical intermediate, cosmetics, detergents, explosive stabilizer, paints, dentifrice, fermentation, finishes.

SHIPPING INFORMATION: Urea, 50 lb. multiwall paper bags with polyethylene liners. Also in bulk.

AROCLOR* COMPOUNDS

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquids, resins or solids.

PROPERTIES: Chlorinated aromatic hydrocarbons varying from water-white mobile liquids and pale yellow viscous oils to light amber resins and opaque crystalline solids. Refractive indices above 1.600. In general are stable on boiling heat at 150°C.; not affected by boiling with sodium hydroxide solution. (The light oils can be distilled at atmospheric pressure without appreciable decomposition and the viscous oils and resins distill readily under vacuum.) Viscous oils and resins almost odorless and tasteless at ordinary temperatures.

GENERAL INFORMATION: Most *Aroclor* materials fuse readily with resinous and pitch-like materials to give products having a decreased fire hazard. Viscous oils and resins do not support combustion when heated alone even at the boiling points—temperatures above 300°C. All have excellent electrical characteristics, high dielectric strength and resistivity, low power factor; certain of the liquids have a high dielectric constant as compared with mineral oils. The oils and resins readily soluble in most common organic solvents and drying oils; hard crystalline materials are, in general, less soluble; all are insoluble in water. The more viscous oils and resins have excellent adhesive properties. All forms are thermoplastic, apparently undergo no further condensation or hardening upon repeated melting and cooling. Nonvolatile; when exposed to air no noticeable oxidation or hardening takes place. The clear resins have rather low vaporization losses; at 65.8°C. (150 F.) less than 0.01 gm. per sq. in. of surface per week.

USES: Liquid *Aroclors* are used as dielectrics for condensers or capacitors and transformers. Solid *Aroclors* are used to impregnate carbon resisters, and when combined with other plastic materials, the *Aroclors* are excellent coolers or impregnating agents for a variety of electrical apparatus, wire coatings and tape. *Aroclors* are used as plasticizers and resins in lacquers including nitrocellulose, ethyl cellulose and cellulose acetate butyrate; to extend various resins and oils and as plasticizer and resin extenders for rubber-base paints, including chlorinated rubber, styrene, butadiene and vinyls. In these protective coatings for metal, masonry and wood, *Aroclors* impart adhesion, resistance against moisture, acids, alkalies or other corrosive influence and they improve electrical insulating properties, durability and reduce flammability. Their fungicidal properties are valuable in waterproofing compounds, wood preservative formulations, caulking compounds and putty. Employed in asphaltic siding materials and cellulose products impregnated or laminated with asphaltic materials, the *Aroclors* plasticize the asphalt, reduce flammability and improve durability. For printing inks, in paper coatings, waxes, floor waxes and other wax products. Used widely in synthetic adhesives including ethyl cellulose, styrene, vinyls and rubber-base materials. *Aroclors* improve adhesion and resistance against corrosive influences. Selected liquid *Aroclors* are used as nonflammable hydraulic fluids for die-casting machines. They are used as actuating media for thermostats. *Aroclors* are useful in cutting oils as extenders for pure lubricants, as high-temperature lubricants and as heat transfer fluids. *Aroclor* 1248 is employed as a nonflammable, liquid-phase, heat-transfer medium for continuous operation in closed systems at temperatures up to 300 C. and at normal atmospheric pressure.

SHIPPING INFORMATION: Resin Synthetic NOIBN without filler. 600-lb. steel drums; 500-lb. net fiber drums; 100-lb. net bags.

DI-2-ETHYLHEXYL ADIPATE (DOA)

ORGANIC DIVISION—LITERATURE AVAILABLE

MOLECULAR WEIGHT: 370.56

STANDARD FORM: Liquid.

SPECIFICATIONS: Clear oily liquid; color APHA 25 max.; odor mild; acidity (as adipic acid) 0.02% max.; Sp. Gr. 0.924 ±0.003 at 25/25° C.

USES: A primary plasticizer which imparts excellent low temperature flexibility to polyvinyl chloride and general synthetic rubbers. Used in conjunction with DOP or DOS at 10 to 100 to make quality vinyl garden hose. Dust art, low cost to vinyl plastisols for cloth coating, wire coating, etc. Imparts excellent heat and light stability and [illegible] to [illegible]

SHIPPING INFORMATION: Resin Plasticizer, 55 and 5-gal. drums; tank cars, tank trucks wherever possible.

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