PRODUCTS

0557533

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Z

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Sales Building
St. Louis 66, Mo.

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TOWOLDMON0005889
WATER_PCB-00002399

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 −80° 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 550°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 form or for pulverizing 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 INDUSTRIAL

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 are soluble in most common chlorinated 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. At forms are thermoplastic, apparently undergo no further condensation or hardening upon repeated melting and cooling. Soundness, when exposed to air no noticeable oxidation or hardening takes place. The clear resins have rather low saponification losses: at 65.5°C. (150°F.) less than 0.01 mm. 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 vehicles or impregnating agents for a variety of electrical apparatus. Wire coatings [illegible] cellulose acetate butyrate. An extended action is in the case 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, *Aroclors* impart adhesion, resistance against moisture, acids, alkalies or other corrosive influence and they improve electrical insulating properties, durability and resistance flammability. Their function as solvents in rubber-base compounds, wood preservative formulations, caulking compounds, glue pots, fireproof fabrics, paints, varnishes and rubber products, impregnation of laminates 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.

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. 1.060-1.066; viscosity at 100°F. 11.7-14.4 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] with excellent lubricity, stability, [illegible] 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.

INDUSTRIAL

PYDRAUL* AC COMPRESSOR LUBRICANT

ORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Liquid.

TYPICAL ANALYSIS: Viscosity at 100°F.—405 SSU, 210°F.—45 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, mobile straight synthetic fire-resistant air compressor lubricant with excellent lubricity, non-corrosive, extremely stable to heat and air, recoverable & shear stable fluid with a two-fold purpose: to eliminate carbon deposits on valves and cylinder walls, thereby to reduce 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 plants, plant air systems, atomizing welding machines, fuel gas 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.—315 SSU, 210°F.—45 SSU; moisture—0.20% max.; neutralization number (acid)—0.15 max.; sp. gr. at 25° 25°C.—1.270-1.360.

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.—1.143-1.143.

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 out-of-doors at 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.—1.340-1.470.

PROPERTIES: A light, amber, straight synthetic [illegible] 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 tak with flowed in rubber gasket. Gross Weight 1,075-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. 1.536; specific gravity at 25°/25 C. 1.180 to 1.183; solubility in 70% alcohol (1:7), complete; solubility in Normal Potassium Hydroxide 1:10, Turbidity, none; color, faint yellow, max.; free acid, meets U.S.P.; 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 medicated gummed tape and paper, as an odor principle in polishes, printing and driving inks, and in covering objectionable odors of [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 [illegible] odor, characteristic; refractive [illegible] 1.533 to 1.5 [illegible] Sp. Gr. at 25°/25 C. [illegible] 20 ppm max.; meets all requirements of U.S.P.

USES: Widely used in sprays; insecticides; [illegible] perfumes; pharmaceuticals; in medicated gummed paper; as an odor principle in polishes, printing inks, pastes and glues; and as a flavoring agent in 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 [illegible] ing 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.

ACL*

INORGANIC DIVISION—LITERATURE AVAILABLE

STANDARD FORM: Powder and granular. A [illegible] ganic chlorine liberating compounds, [illegible] dients in household and commercial [illegible] scouring cleansers, machine diswashing com[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 of solids.

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

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WATER_PCB-00002402

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 320°C. All have excellent electrical characteristics. High dielectric strength and low specific inductive power factor; certain of the liquids have a high dielectric constant as compared with mineral oils. 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. Nonstaining; 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 their inherent chemical resistance properties substantially reduce flammability. They function as sealers in water resistant compounds, wood preservative formulations, caulking compounds and putty. Employed in asphaltic and bituminous 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 activating 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: $C_6H_5CH_2Cl$



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 araikyl halide used in the production of the following: dyestuffs; perfume bases such as benzyl alcohol, acetate and other esters; plasticizers; resins; wetting agents; germicides; 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: $C_6H_5CH_2Cl$



$+ Na_2CO_3 + H_2O$

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 white emulsion [illegible] 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 araikyl halide used in the production of the following: dyestuffs; perfume bases such as benzyl alcohol, acetate and other esters; plasticizers; resins; wetting agents; germicides; 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 23.5% complete; moisture 18.0-20.0%; available chlorine 24.5-25.2%; assay 97.0% min.; trace max. retained on 10 mesh; 15% retained on 35 mesh.

CHLORINE-CAUSTIC SODA, CAUSTIC POTASH AND SODIUM SULFIDE PLANTS— Complete manufacturing information on the DeNora 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 developers), dichloroquinazine chromic dyestuffs intermediates, 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. 221 (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 82.5°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-chloro-5-nitrobenzene sulfonic acid. Pharmaceutical applications: "Diasone" an agent for treatment of Hansen's disease (Abbott patent); and a variety of anti-oxidant and coin inhibitors. CAUTION: This product is toxic. Avoid breathing its vapors and avoid contact with the skin. Toxicity reference: U. S. Public Health Bulletin No. 221 (1941).

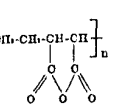
SHIPPING INFORMATION: Dye Intermediate NOIBN "Poison" label required. 125-lb. fiber drums.

TOWOLDMON0005893
WATER_PCB-00002403

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

A. ELANIC 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 amine-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: film-forming film-formers, polymeric liquids, waxy solids and polyampholytes.

SUGGESTED USES: *Beneficiation agent for clays used in oil-well* drilling muds; stabilizers and thickeners in food, current 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: 98.06

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; perfume bases; alcohol denaturants; pharmaceuticals; and plasticizers such as octyl phthalate, dibutyl phthalate, dimethyl phthalate, diethyl phthalate and phthalyl alcohol esters.

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

INORGANIC 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, slow release, 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 1.6325. In general are stable on boiling at 150 C.; not affected by dilute acid or 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 colorless and odorless at ordinary temperatures.

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 above even at their 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 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. 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 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 applications. Wax coatings and tape. *Aroclors* are used as plasticizers and resins in lacquers including nitrocellulose, ethyl cellulose and cellulose acetate butyrate; they are used as resins and as plasticizer and resin extenders for chlorinated rubber 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 their inherent electrical insulating properties, durability and inherent flammability. They function as sealers 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, retain flammability and improve durability. For printing inks; in precision-casting waxes, floor waxes and other wax polish formulations; only 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 use-casting machines. They are used as activators for the thermostats. *Aroclors* are useful in cutting oils as extreme pressure lubricants, as high-temperature lubricants and as organic 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 resins and synthetic rubbers. Used in conjunction with DOP and DSP in 50-160 to make quality vinyl garden hose. Part of 50-50 to 60-40 to vinyl plastisols for cloth coating, where other ester plasticizers exceed limit of viscosity and where resistance to [illegible]

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

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