

Product Bulletin

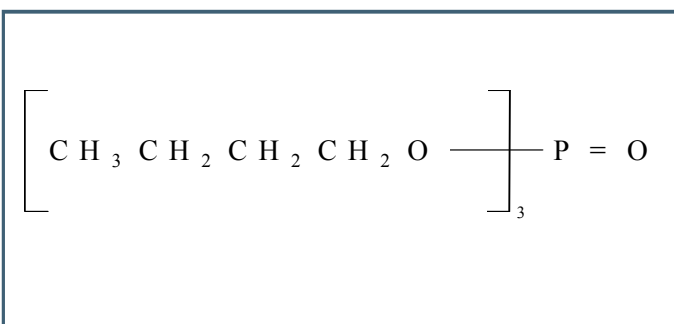
supresta™
BUILT-IN DEFENSE

Phosflex® 4

Phosflex®
Flame Retardant Plasticizers

Chemical Name: Tributyl Phosphate

CAS #: 126-73-8



Phosflex® Product Selector

	Key applications	Key characteristics
4	<ul style="list-style-type: none">• Primary plasticizer for nitro-cellulose, chlorinated rubber• Anti-foam agent	<ul style="list-style-type: none">• Low viscosity• Low density
31L	<ul style="list-style-type: none">• PVC film and sheet compounds• Dispersant for plastisols	<ul style="list-style-type: none">• Low color• Blendable with non-FR plasticizers
41L	<ul style="list-style-type: none">• PVC film and sheet compounds• Dispersant for plastisols	<ul style="list-style-type: none">• Low color• Blendable with non-FR plasticizers
71B	<ul style="list-style-type: none">• Flame retardant plasticizer for PVC	<ul style="list-style-type: none">• Excellent flame retardant properties• Low volatility
362	<ul style="list-style-type: none">• Flame retardant plasticizer for PVC alloys	<ul style="list-style-type: none">• Low temperature and low smoke• Excellent vinyl solvating properties• Approved for packaging materials in food contact
390	<ul style="list-style-type: none">• Flame retardant plasticizer for PVC sheets and coatings	<ul style="list-style-type: none">• Excellent low temperature flexibility• Low smoke, good weathering properties
314, 318, 321, 327	<ul style="list-style-type: none">• Blended plasticizer for film and sheet vinyl goods	<ul style="list-style-type: none">• High efficiency• High solvating

Overview

Phosflex® 4 is a plasticizer and solvent for cellulose esters, lacquers, plastic and vinyl resins. It is used for a wide variety of applications, including as a solvent extractant of rare earth metals from ores, pigment grinding assistant, and antifoam agent. Phosflex® 4, is a clear, water-white, high boiling liquid.

Key Applications

Phosflex® 4 is an effective solvent and is used in blending of materials, which are difficult to dissolve. This characteristic makes Phosflex® 4 an excellent solvent for lithographic inks and in the preparation of concentrates for agricultural herbicides and fungicides. It can also be used as a solvent for natural gums and synthetic resins. Phosflex® 4 is also used for solvent extraction, sometimes called liquid-liquid extraction, of numerous rare earth metals. It is used as a sole agent or in combination with other chemicals for the extraction of uranium from its ores.

As an efficient antifoam agent, Phosflex® 4 has no residual odor, making it ideal for use in paper and protective coatings. Tributyl phosphate is utilized, for example, as a defoamer in vinyl latex emulsions, rubber-based paints, casein, inks, cement, protein- or resin-based adhesives, and textile sizings. Normally, less than one percent by weight addition is sufficient to prevent undesirable foaming. Used with a small amount of isopropanol or similar material, tributyl phosphate will destroy or prevent foam in most detergent solutions. In anti-freeze solutions of the ethylene glycol-borax type, tributyl phosphate sharply reduces foaming. It is similarly useful in the manufacture and packaging of latex paints and some floor polishes. The surfactant and antifreeze characteristics of this product

help to extend the cold weather application season for paints, enabling latex coatings to flow evenly in cold climates and reduce brush marks. In other applications, it is an antifoaming agent for concrete and a defoamer and corrosion inhibitor in chromium plating.

Phosflex® 4 has been used to improve the wetting ability of mercerizing liquids and the film strength of lubricating oils. Its relatively high phosphorus content, along with good solvency, permits use in adhesives for veneer plywood applications.

Safety & Handling

Consult the Material Safety Data Sheet for this product.

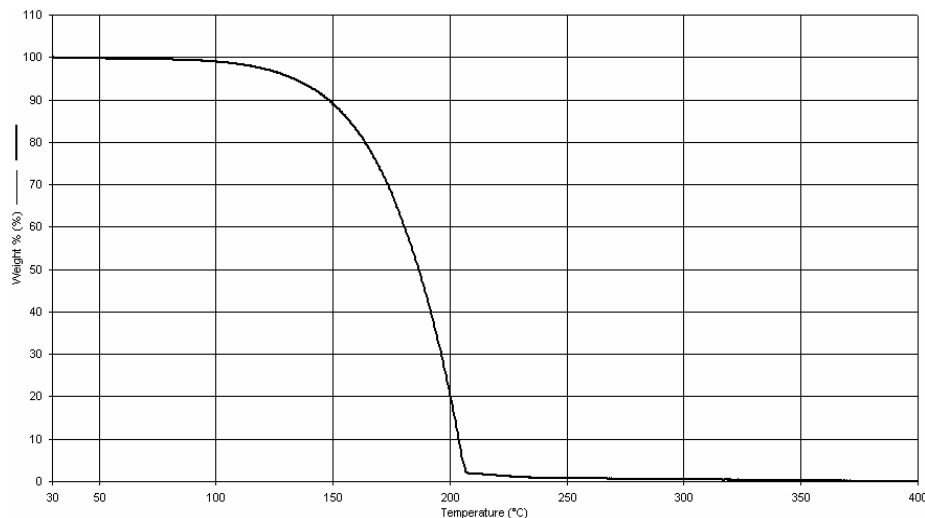
Shipping Information

Available in bulk tank trucks, isocontainers, 2,300 lb totes, and 455 lb drums.

Typical Properties

Physical appearance	Clear, transparent liquid
Phosphorus content, wt. %	11.7
Specific gravity, 20°C, lbs/gal	0.980
Density @ 20°C, lbs/gal	8.2
	kg/m ³
	980
Specific Heat, calories/gm	0.465
Heat of Vaporization, calories/gm	41.5
Viscosity @ 25°C, mPa.s	5
Acidity, mg KOH/g	0.10
Water content, wt. %	0.20
Color, APHA	<50
Assay	>98% tributyl phosphate

Thermogravimetric Analysis: Phosflex® 4 (10°C rise/minute in nitrogen)



2% wt. Loss	182°C
5% wt. Loss	198°C
10% wt. Loss	211°C

For more information about our products and to place an order, please contact one of Supresta's regional sales offices.

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