

MATERIAL SAFETY DATA SHEET

DATE PRINTED: 10/16/2003

PAGE 1
MSDS NO. 16-084422

PHOSFLEX 61B

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME
PHOSFLEX 61B**CHEMICAL NAME**
Butylated triphenyl phosphate**SYNONYM**
t-Butylphenyl diphenyl phosphate**CHEMICAL FORMULA**
Mixture**CAS #**
MIXTURE**CHEMICAL FAMILY**
Aryl phosphate**MANUFACTURERS NAME**
Akzo Nobel Functional Chemicals LLC**PRODUCT/TECHNICAL INFORMATION**
1-800-666-1200**ADDRESS**
5 Livingstone Avenue
Dobbs Ferry, NY 10522**MEDICAL/HANDLING EMERGENCY**
1-914-693-6946**COUNTRY**
USA**TRANSPORTATION EMERGENCY**
CHEMTREC 1-800-424-9300**PRODUCT USE**
Flame-retardant plasticizer**REVISION DATE**
10/09/2003**ISSUE DATE**
3/10/1995**REVISION NO.**
012

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE DESCRIPTION	PERCENT	CAS#
t-Butylphenyl diphenyl phosphate	35.000- 40.000	56803-37-3
Bis(t-butylphenyl) phenyl phosphate	23.000- 28.000	65652-41-7
Tri(t-butylphenyl) phosphate	4.000- 8.000	78-33-1
Triphenyl phosphate	27.000- 32.000	115-86-6

SECTION 3. HAZARDS IDENTIFICATION

Appearance & Odor
Clear liquid with no odor.**STATEMENT OF HAZARDS**
May cause mild skin and eye irritation.
Inhalation of vapor or mist may cause respiratory tract irritation.
Triphenyl phosphate may cause cholinesterase inhibition at levels above the exposure limits.**Fire & Explosion Hazards**
This product is not defined as flammable or combustible. It is self-extinguishing once the source of ignition is removed. The material is not sensitive to static discharge or physical impact. It may decompose under fire conditions.**Primary Route of Exposure**
The primary routes of exposure to this product are skin contact and inhalation of mists or vapors.**Inhalation Acute Exposure**
Inhalation of vapors or mists may cause respiratory tract irritation. Triphenyl phosphate, a component of this product, may cause cholinesterase inhibition (see Section 4, "Note to Physician," for signs and symptoms of these effects).MARKETED BY
**HARWICK STANDARD
DISTRIBUTION CORPORATION**

60 S. Seiberling Street • Akron, Ohio 44305

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SECTION 3. HAZARDS IDENTIFICATION
(CONTINUED)
-----**Skin Contact - ACUTE**

Skin contact may cause mild irritation.

Eye contact - ACUTE

Eye contact may cause mild irritation.

Ingestion - ACUTE

Ingestion may cause irritation of the gastrointestinal system and diarrhea. Ingestion of triphenyl phosphate, a component of this product, may cause cholinesterase inhibition. See Section 4, "Note to Physician," for signs and symptoms of these effects.

CARCINOGENICITYIARCNO OSHANO
NTPNO ACGIHNO-----
SECTION 4. FIRST AID MEASURES
-----**Inhalation First Aid**

If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Skin Contact - First Aid

Remove contaminated clothing and equipment. Thoroughly wash all affected areas with soap and plenty of water. Get medical attention if irritation persists. Wash contaminated clothing before reuse. Thoroughly clean or destroy contaminated shoes.

Eye Contact - First Aid

Immediately flush eyes with plenty of running water. If victim is wearing contact lenses, remove them. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Get medical attention if irritation persists.

Ingestion - First Aid

Get medical attention by calling a physician or a poison control center immediately. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head below hips to reduce the risk of aspiration. Never give anything by mouth to an unconscious person.

Medical conditions aggravated

Persons with pre-existing neuromuscular disorders may be at an increased risk from exposure to this material.

Note to Physician

This product is an organophosphorus mixture containing triphenyl phosphate, a known cholinesterase inhibitor in humans. Symptoms of cholinesterase inhibition may include: headache, nausea, sweating, numbness and tingling of the hands and feet, salivation, muscle twitching, tremors, incoordination, blurred vision, tears, abdominal cramps, diarrhea, and chest discomfort. In cases of cholinesterase inhibition, atropine by injection is antidotal. Pralidoxime chloride (2-PAM; Protopam chloride) is also antidotal when administered early and in conjunction with atropine.

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SECTION 5. FIRE FIGHTING MEASURES
-----**FLASH POINT**437.00 F 225.00 C
GREATER THAN**FLASH METHOD**

SETA Closed Cup

AUTO IGNITION TEMPERATURE

N/D F N/D C

UPPER EXPLOSION LIMIT

N/D

LOWER EXPLOSION LIMIT

N/D

Extinguishing Media

Use water fog or spray, dry chemical, foam or carbon dioxide extinguishing agents.

Fire Fighting Procedures

As in any fire, prevent human exposure to fire, smoke, fumes or products of combustion. Evacuate non-essential personnel from the fire area. Firefighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. If possible, move containers from the fire area. If not leaking, keep fire exposed containers cool with a water fog or spray to prevent rupture due to excessive heat. High pressure water may spread product from broken containers increasing contamination or fire hazard.

Dike fire control water for later disposal. Do not allow contaminated water to enter waterways.

Fire & Explosion Hazards

This product is not defined as flammable or combustible. It is self-extinguishing once the source of ignition is removed. The material is not sensitive to static discharge or physical impact. It may decompose under fire conditions.

Other Fire + Explosion Hazards

No other fire or explosion hazards of this product are known.

Hazardous Products/Combustion

Decomposition of this product under fire conditions can produce carbon monoxide, phosphorus oxides, and organic decomposition products.

NFPA HEALTH RATING

1

NFPA FLAMMABILITY RATING

1

NFPA REACTIVITY RATING

0

NFPA OTHER

ND

SECTION 6. ACCIDENTAL RELEASE MEASURES
-----**Cleanup**

Isolate spill area and restrict nonessential personnel. All personnel involved in spill cleanup should follow appropriate industrial hygiene practices (see Section 8). Stop source of spill if possible without being injured. Dike area to prevent spill from spreading. Soak up liquid with a suitable absorbent such as clay, sawdust, or kitty litter. Sweep up absorbed material and place in a chemical waste container for disposal. CAUTION! Spill area may be slippery. Cover spill area with a slurry of powdered household detergent and water. Use stiff brush to work slurry into cracks and crevices. Allow to stand for 2-3 minutes, then flush with water. Dike wash water for later disposal. Do not allow contaminated water to enter waterways or sewers.

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SECTION 7. HANDLING AND STORAGE
-----**Handling**

Wear protective clothing including chemical goggles and rubber gloves when handling this product to avoid eye and skin contact. Handle in a well-ventilated area. Avoid inhalation of vapor or mist. Wash thoroughly after handling.

Containers should be located in an area where they can be rotated regularly (first in, first out) and visually inspected for dents and bulging on a weekly basis. If bulged drums are found, they should be vented in an open area by removing the two-inch bung very slowly. The two-inch bung should not be removed completely until there is no sound of pressure being released. The bung can then be removed, but this should be done slowly and with care.

Emptied container may retain product residues. Follow all warnings and precautions even after container is emptied.

Storage

Store away from foodstuffs and animal feed. Containers should be stored in a cool, dry, well ventilated area away from flammable or oxidizing materials and sources of heat or flame. Exercise due caution to prevent damage to or leakage from the container.

Prolonged storage at elevated temperatures under wet alkaline or acidic conditions should be avoided to assure product integrity. Care should be taken to prevent moisture condensation in the container. Carbon steel is the preferred material of construction for storage containers. The product is normally shipped in unlined tank cars, trucks and drums.

MAXIMUM STORAGE TEMPERATURE

149.00 F 65.00 C

Higher in absence air/moisture

General Comments

At temperatures below 4.4 C (40 F), the viscosity characteristics are such that improved pumping rates may be achieved by warming. Temperatures from 27-37.8 C (80-100 F) provide good rates of flow.

This product can be stored and transported in equipment constructed of mild steel.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
-----**Respiratory protection**

Use a NIOSH-approved organic vapor/acid gas respirator (OVAG) with dust, mist, and fume filters to reduce potential for inhalation exposure if use conditions generate vapor, mist, or aerosol and adequate ventilation (e.g., outdoor or well-ventilated area) is not available. Where exposure potential necessitates a higher level of protection, use a NIOSH-approved, positive-pressure, pressure demand, air-supplied respirator. When using respirator cartridges or canisters, they must be changed frequently (following each use or at the end of the workshift) to assure breakthrough exposure does not occur.

Skin Protection

Skin contact with the liquid or its aerosol should be prevented through the use of suitable protective clothing, gloves, and footwear selected with regard for use condition exposure potential. Combination neoprene over natural latex gloves are recommended.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
(CONTINUED)
-----**Eye Protection**

Eye contact with the liquid or its aerosol should be prevented through the use of chemical safety goggles or a face shield selected with regard for use condition exposure potential.

Ventilation protection

At elevated processing temperatures or in the event that use conditions generate airborne vapor, aerosol, or mist, the material should be handled in a well-ventilated area. Where adequate ventilation is not available, respiratory protection should be used.

Other Protection

Safety showers, with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gentle flow of cool to tepid tap water, should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather. Long sleeved clothing may be used to minimize skin contact.

APPLICABLE EXPOSURE LIMITS

Other than any exposure limits which may be displayed in Section 8, there are no other known exposure limits applicable to this product or its components.

EXPOSURE LIMITS/REGULATORY INFORMATION
(IN MG/M3)

SUBSTANCE DESCRIPTION	REG. AGENCY	PEL	TLV	TWA	STEL	CEIL
t-Butylphenyl diphenyl phosphate	OSHA	N/D	N/D	N/D	N/D	N/D
	ACGIH	N/D	N/D	N/D	N/D	N/D
	NIOSH	N/D	N/D	N/D	N/D	N/D
	SUPPLIER	N/D	N/D	N/D	N/D	N/D
Bis(t-butylphenyl) phenyl phosphate	OSHA	N/D	N/D	N/D	N/D	N/D
	ACGIH	N/D	N/D	N/D	N/D	N/D
	NIOSH	N/D	N/D	N/D	N/D	N/D
	SUPPLIER	N/D	N/D	N/D	N/D	N/D
Tri(t-butylphenyl) phosphate	OSHA	N/D	N/D	N/D	N/D	N/D
	ACGIH	N/D	N/D	N/D	N/D	N/D
	NIOSH	N/D	N/D	N/D	N/D	N/D
	SUPPLIER	N/D	N/D	N/D	N/D	N/D
Triphenyl phosphate	OSHA	3.0000	N/D	N/D	N/D	N/D
	ACGIH	N/D	3.0000	N/D	N/D	N/D
	NIOSH	N/D	N/D	3.0000	N/D	N/D
	SUPPLIER	N/D	N/D	N/D	N/D	N/D

LEGEND:

EXPOSURE LIMIT DESCRIPTIONS
 CEIL Ceiling Exposure Limit
 PEL Permissible Exposure Limit

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
(CONTINUED)

STEL Short Term Exposure Limit
 TLV Threshold Limit Value
 TWA Time Weighted Average
 N/D = Not Determined

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

VAPOR PRESSURE (mm Hg)
 LT 0.1 @ 37.8 C (100 F)

VAPOR DENSITY (Air = 1.0)
 N/D

EVAPORATION RATE
 N/D

VOLATILE %
 N/D

BOILING POINT
 - F - C
 Decomposes @ > 352 C (665 F)

ODOR THRESHOLD (ppm)
 N/D

SPECIFIC GRAVITY
 1.165 20 C (68 F)

BULK DENSITY
 . Not Applicable

SOLUBILITY IN WATER
 LT 0.1 g/100 ml water

SOLUBILITY IN OTHER SOLVENTS
 Not Determined

COEFFICIENT OF OIL/WATER
 N/D

POUR POINT
 -.40 F -18.00 C

MELTING POINT
 N/D F N/D C

pH FACTOR
 N/D

CLOUD POINT
 N/D F N/D C

FLASH POINT
 437.00 F 225.00 C
 GREATER THAN

FLASH METHOD
 SETA Closed Cup

UPPER EXPLOSION LIMIT
 N/D

LOWER EXPLOSION LIMIT
 N/D

AUTO IGNITION TEMPERATURE
 N/D F N/D C

Other
 Viscosity @ 25 C (77 F) = 77 mPas

SECTION 10. STABILITY AND REACTIVITY

Stability
 This product is stable at ambient temperatures and atmospheric pressure. It is not self-reactive and is not sensitive to static discharge or physical impact.

Incompatibilities
 This product is incompatible with strong oxidizers, strong acids and strong alkalis. It hydrolyzes slowly at ambient temperatures in acidic or alkaline aqueous solutions.

Polymerization
 Hazardous polymerization is not expected to occur.

Decomposition
 Under wet acidic or alkaline conditions this product hydrolyzes slowly and nonviolently to form phenol, substituted phenols, and aryl phosphoric acids.

Vapors may decompose at elevated temperatures to release harmful

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SECTION 10. STABILITY AND REACTIVITY
(CONTINUED)

materials.

Conditions to Avoid

Prolonged storage at elevated temperatures (above 65.6 C; 150 F) should be avoided.

Avoid contact with strong acids, strong bases, and strong oxidizers.

SECTION 11. TOXICOLOGICAL INFORMATION
-----**Toxicological - Inhalation**

The acute inhalation LC50 (rat) for this material following a 4-hour exposure was > 3.1 mg/l, the highest attainable concentration. No effects were observed at this level.

Inhalation Chronic Exposure

Chronic inhalation exposure effects for this product are not known.

Toxicological - Dermal

Practically non-toxic; the acute dermal LD50 (rabbit) for this material is greater than 2000 mg/kg.

This material was found to be a mild skin irritant in rabbits following a 24-hour exposure.

Skin Contact - CHRONIC

Chronic dermal exposure effects for this product are not known. However, prolonged and/or repeated contact may cause irritation.

Toxicological - Eye

This product is a mild irritant to rabbit eyes.

Toxicological - Ingestion

Practically non-toxic; the acute oral LD50 (rat) for this material is > 5000 mg/kg.

Ingestion - CHRONIC

Daily ingestion by rats of 100, 400, or 1600 ppm of this material in the diet for three months produced increases in the liver and adrenal gland weights in females and increases in the liver weights of males at the high-dose level. However, no histopathological changes were noted.

CARCINOGENICITY/MUTAGENICITY

This product was examined for mutagenic and clastogenic activity in a series of in vitro assays. The assays included: Ames tests, the mouse lymphoma and chromosome aberration tests. No evidence of genetic activity was noted in any of these assays. This product was tested in an in vitro malignant transformation assay using BALB/3T3 cells. It did not induce morphological transformations and thus did not exhibit carcinogenic potential in this assay.

REPRODUCTIVE EFFECTS

Daily administration of this material at 100, 400, or 1000 mg/kg to rats on days 6 through 20 of gestation demonstrated maternal toxicity (increased liver weights and reduced food consumption at the high-dose) and fetotoxicity (reduction in fetal body weight at the high-dose) but no indications of teratogenicity were observed.

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SECTION 11. TOXICOLOGICAL INFORMATION
(CONTINUED)
-----**NEUROTOXICITY**

When this material was administered orally to hens at a cumulative oral dose of 23 g/kg, no signs of acute delayed neurotoxicity were noted.

Other Toxicological Effects

No other toxic effects for this product are known.

Target Organs

Overexposure to this product may affect the skin, eyes, respiratory system, and central and peripheral nervous system.

SECTION 12. ECOLOGICAL INFORMATION
-----**ECOTOXICOLOGICAL INFORMATION**

96-hr. LC50 (Rainbow trout) = > 2 mg/l
96-hr. LC50 (Sheepshead minnow) = > 1 mg/l
96-hr. LC50 (Mysid shrimp) = 0.39 mg/l

DISTRIBUTION

Triaryl phosphate esters, including triphenyl phosphate, exhibit low aqueous solubility, have moderate potential for bioconcentration, and readily undergo biodegradation.

CHEMICAL FATE

This material is readily biodegradable.

Hydrolysis rates for triphenyl phosphate, a product component, are:

at pH 9.5: half-life: 0.23 days

at pH 8.2: half-life: 7.5 days

SECTION 13. DISPOSAL CONSIDERATIONS
-----**Waste Disposal**

Material that cannot be used or chemically reprocessed should be disposed of in accordance with all applicable regulations.

Product containers designed for single use should be thoroughly emptied before disposal.

NOTE! State and local regulations may be more stringent than federal.

This product, if unused, does not meet the EPA's RCRA criteria as either a listed or a characteristic hazardous waste. Generators of wastes are required to evaluate their materials for compliance with RCRA and local disposal procedures and regulations.

CONTAINER DISPOSAL

Emptied containers may retain residues of this material. Follow all warnings and precautions even after the container is emptied.

Containers should be drained of residual material before disposal. Emptied containers should be disposed of in accordance with all applicable laws and regulations.

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SECTION 14. TRANSPORT INFORMATION
-----**SHIPPING DESCRIPTION**

FOLLOWING SHIPMENTS ARE NOT REGULATED FOR TRANSPORT:

Surface transport within North America (U.S.A., Canada, Mexico) in packages of 119 gallons or less (non-bulk).

Air transport within North America (U.S.A., Canada, Mexico).

FOLLOWING SHIPMENTS ARE REGULATED FOR TRANSPORT (SHIPPING DESCRIPTION FOLLOWS):

Bulk surface shipments within North America (> 119 gallons).

Water transport within North America (U.S.A., Canada, Mexico).

Export shipments (excluding non-bulk shipments to Canada and Mexico and shipments via air transport to Canada and Mexico).

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

(Triphenyl phosphate/tert-butylated triphenyl phosphates mixtures containing 10% to 48% triphenyl phosphates)

9, UN3082, PG III

NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO. 171

REQUIRED LABELS

PRIMARY LABEL: Class 9

SUBSIDIARY RISK LABEL: Marine pollutant

ENVIRON. HAZARDOUS SUBSTANCE

This product contains triphenyl phosphate which is a Marine

Pollutant per 49 CFR 172.101, Appendix B.

SECTION 15. REGULATORY INFORMATION

Component t-Butylphenyl diphenyl phosphate is subject to the following

Environmental List

DSL Domestic Substance List-Canada
TSCA Toxic Subst. Cont. Act -listed

Component Bis(t-butylphenyl) phenyl phosphate is subject to the following

Environmental List

DSL Domestic Substance List-Canada
TSCA Toxic Subst. Cont. Act -listed

Component Tri(t-butylphenyl) phosphate is subject to the following

Environmental List

DSL Domestic Substance List-Canada
TSCA Toxic Subst. Cont. Act -listed

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SECTION 15. REGULATORY INFORMATION
(CONTINUED)

Component Triphenyl phosphate is subject to the following

Environmental List

DSL	Domestic Substance List-Canada
MA. LIST	Massachusetts Substance List
NJ R-T-K	New Jersey R-T-K Hazard. Sub.
PA. LIST	Penn. Hazardous Substance List
TSCA	Toxic Subst. Cont. Act -listed

OTHER REGULATORY INFORMATION

No other regulatory information is available on this product.

WHMIS HAZARD CLASS
NOT CONTROLLED**HAZARD RATING SOURCE**
HMIS**HEALTH**
1**REACTIVITY**
0**FLAMMABILITY**
1**OTHER**-----
SECTION 16. OTHER INFORMATION
-----**OTHER INFORMATION**

PHOSFLEX is a registered trademark of Akzo Nobel Chemicals Inc.

Revisions made in Section(s) 2, 5, 8, 9, 15.

CREATED BY
Product Safety 914/674-5000-----
KEY TO ABBREVIATIONS:EQ=Equal
AP=ApproximatelyLT=Less Than
TR=TraceGT=Greater Than
ND=No Data available

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