

Section 1. Supplier Information

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Section 2. Hazardous Ingredients

<u>Hazardous Component(s)</u>	<u>CAS #</u>	<u>PEL TWA</u>	<u>PEL Ceiling</u>	<u>TLV TWA</u>	<u>TLV STEL</u>	<u>MFG Limits</u>	<u>WGT %</u>
Sodium tripolyphosphate	7758-29-4	15 mg/m	N/E	10 mg/m ³	N/E	N/E	< 5
2-(2-Butoxyethoxy) ethanol	112-34-5	N/E	N/E	N/E	N/E	35 ppm	< 5
2-Butoxyethanol	111-76-2	50 ppm#	N/E	25 ppm#	N/E	25 ppm#	< 5
Phosphoric acid ester	Proprietary	N/E	N/E	N/E	N/E	N/E	1 - 10
Sodium metasilicate	6834-92-0	5 mg/m ³	N/E	N/E	N/E	2 mg/m ³	1 - 10

N/A = Not Applicable; N/E = Not Established; * = Mists; # = Skin; ' = Respirable Dust; " = Total Dust; ^ = Vapor; ** = Fumes; C = Ceiling Limit

All components of this product are listed on the Toxic Substances Control Act (TSCA) Inventory and the Canadian Domestic Substances List (DSL), or are exempt from the listing.

Section 3. Hazards Identification

Primary Routes of Entry

Inhalation: YES
Skin: YES
Ingestion: NO

Hazardous Materials Information System (HMIS) Ratings

Health:	* 2	0 = Minimal
Fire:	0	1 = Slight
Reactivity:	0	2 = Moderate
		3 = Serious
		4 = Severe
		* = Chronic Hazard

Signs of Symptoms of Exposure:

INHALATION: Vapors are irritating to the nose, throat, and respiratory tract, and may produce headache and nausea in areas of poor ventilation.

SKIN: Prolonged or repeated contact can cause irritation, defatting and dermatitis. Absorption through intact skin is possible.

EYES: Vapors are slightly uncomfortable. Splashes can be irritating, will cause painful burning or stinging of eyes and lids, watering of eyes and inflammation of conjunctiva.

INGESTION: Ingestion of large amounts causes gastric disturbances. Nausea and vomiting may result.

Chemical Listed as Potential Carcinogens:

NTP: NO

IARC: NO

OSHA: NO

Target Organs: Eyes, skin, respiratory tract, and gastrointestinal

Section 4. Emergency And First Aid Procedures

INHALATION: If adverse effects such as dizziness, nausea, or irritation are noted, move person to fresh air. If not breathing, give artificial respiration. Get medical attention!

SKIN: Immediately wash skin with large amounts of soap and water. Remove contaminated clothing and shoes; wash before reuse. Get medical attention if irritation persists after washing.

EYES: Flush eyes immediately with water for at least 15 minutes. If irritation persists, call a physician.

INGESTION: Call a physician or emergency medical facility immediately!

Section 5. Fire Fighting Measures

Flash Point: None to boiling.

Method Used: Tagliabue Closed Cup

Flammable Limits in Air % by Volume: LEL: 1.1

UEL: 10.6; for glycol ether EB.

Extinguisher Media: Water fog, carbon dioxide, dry chemical or foam.

Special Fire Fighting Procedures: Firefighters should wear a self-contained breathing apparatus with a full facepiece operated in pressure demand or other positive pressure mode, and protective clothing.

Unusual Fire And Explosion Hazards: Low fire hazard when exposed to heat and flame. Product is not flammable or combustible.

Section 6. Accidental Release Measures

If material is spilled, evacuate the area, ventilate, and avoid breathing vapors. Dike area to contain spill. Clean up area by mopping or with absorbent material and place in closed containers for disposal. Avoid contamination of ground and surface waters. Do not flush to sewer. If spill occurs indoors, turn off air conditioning and/or heating systems, to prevent vapors from contaminating entire building.

CERCLA (Superfund) Reportable Quantity (in lbs) None in attainable quantities.

Section 7. Handling and Storage

Handling: Avoid contact with skin and eyes; wash thoroughly after handling. Avoid breathing vapor; use with adequate ventilation.

Storage: KEEP FROM FREEZING! Store in a dry location at room temperature. Keep container closed and maintain all original markings and labels. Do not use aluminum or galvanized steel for storage, pumping or transfer.

Other: If this solution is mixed with water, heat will be given off. When diluting, always add this solution to water SLOWLY with constant mixing, in order to avoid splattering.

Section 8. Exposure Controls and Personal Protection

Respiratory Protection: Use NIOSH / MSHA approved respirator where high vapor or mist concentrations are present.

Local Exhaust: Special ventilation is suggested at points where vapors can be expected to escape to the workplace air.

Mechanical Exhaust: Mechanical ventilation should be sufficient to maintain exposure levels

	below exposure limits.
Protective Gloves:	Wear chemical resistant gloves.
Eye Protection:	Safety glasses with side shields. Do NOT wear contact lenses. Chemical goggles and/or faceshield should be worn where splashing is possible.
Other Protection:	Eye wash and safety shower should be readily available. Wear a chemical resistant apron and boots where splashing is possible.
Hygienic Practices:	Protective equipment and clothing should be selected, used and maintained according to applicable standards and regulations. For further information, contact the clothing or equipment manufacturer. Do not eat, drink, or smoke while using this product. Wash hands prior to eating, drinking, smoking, or using restrooms. Cleanse skin thoroughly after contact, before breaks and meals, and at the end of the work shift.

Section 9. Physical and Chemical Properties

Boiling Point:	212 ° F (initial)	Degree of water solubility:
Specific Gravity (H ₂ O=1):	1.06-1.07	Negligible = Less than 0.1%
Vapor Pressure (mm Hg):	Similar to water.	Slight = 0.1% - 1%
Vapor Density (air=1)	Similar to water.	Moderate = 1% - 10%
Solubility in Water:	Complete.	Appreciable = More than 10%
Reactivity in Water:	None.	Complete = 100%
Weight per Gallon (lb/gal):	8.8 - 9.0 lbs/gal	
% Volatile by Volume:	86-88%	
% Solid by Weight:	12-14%	
Appearance and Odor:	Clear, pink liquid with a mild solvent odor.	
Theoretical VOC: (>0.1 mm Hg @ 20 ° C)	0.4 - 0.6 lbs/gal	
Analytical VOC : (EPA method 24)	0.3 - 0.5 lbs/gal	
pH:	12.5 - 13.5	

Section 10. Stability and Reactivity

Stability:	Stable.	Hazard Polymerization:	Will not occur.
Conditions to Avoid:	Heat, sparks, open flames, or hot surfaces.		
Incompatibility (Materials to Avoid):	Strong oxidizing agents, strong bases, salts of strong bases at elevated temperatures, and aluminum surfaces.		
Hazardous Decomposition Products:	Unidentified organic compounds and oxides of carbon.		

Section 11. Toxicological Information

Sodium tripolyphosphate [CASRN 007758-29-4]

ACUTE TOXICITY Oral LD50 (rat) = 5,400 mg/kg Eye irritation (rabbit): 3.3/110.0, slightly irritating
Dermal LD50 (rabbit) > 7,940 mg/kg Skin irritation (rabbit): 0-0/8.0 (24 hr), not irritating
Inhalation LC50 (rat) > 0.39 mg/L, 4 hr
Subchronic: Rats fed sodium tripolyphosphate anhydrous in their diet for two years exhibited decreased growth, increased kidney/body weight ratios, and kidney changes.
Teratology: No birth defects were noted in rabbits given sodium tripolyphosphate anhydrous orally

during pregnancy.

Reproductive: No effects were seen on the ability of male and female rats to reproduce when fed sodium tripolyphosphate anhydrous for 3 successive generations.

Mutagenicity: Sodium tripolyphosphate anhydrous has generally produced no genetic changes in a variety of standard tests using animals and animal or bacterial cells. Genetic changes were reported in a standard test using yeast cells. [0,0-18,19,0-071000]

Ethanol, 2-(2-butoxyethoxy) [CASRN 000112-34-5]

ACUTE TOXICITY

Oral LD50 (rat)	= 5.1-5.7 g/kg	Eye Irritation: Moderate [Rabbit]
Oral LD50 (mouse)	= 2.4 g/kg	Skin Irritation: Slight [Rabbit]
Dermal LD50 (rabbit)	~ 4 g/kg	Inhalation LC50 (rat) > 18 ppm; 7 hours

Other Information: Kidney effects in male rats were observed in laboratory animals exposed to this material. Effects were consistent with male rat hyaline droplet nephropathy, which is of questionable significance to human health.

Mutagenicity: Animal mutagenicity studies were negative. In vitro mutagenicity studies were negative in some cases and positive in other cases. [3-3,3,1,6,4-121600], [18,7-1,3,6,4-020901], & [4,16-6,4,3,1-022001]

2-butoxyethanol [CASRN 000111-76-2]

ACUTE TOXICITY

Oral LD50 (guinea pig)	= 1.4 g/kg	Eye irritation (rabbit): severe.
Dermal LD50 (guinea pig)	> 2 g/kg	Skin irritation (rabbit): moderate.
Inhalation LC50 (guinea pig)	> 633 ppm, 1 hr	

Reproductive and Developmental Toxicity: Inhalation exposure of pregnant rabbits caused some lethality to the dam and fetus at 200 ppm, but there were no effects at 100 ppm and below. In another study by the same route irritancy was noted in the dams and a related fetotoxicity was observed at 100 and 200 ppm, but there were no effects 50 ppm and below. Birth defects were not noted in either study.

Other Testing: Exposure of rats by inhalation to 2-butoxyethanol caused hemolysis, hemoglobinuria (blood in the urine) and a slight increase in liver weight. Other species, including man, were much less sensitive to hemolysis. The hemolytic effect seen in rats was transitory and/or reversible and not considered to be relevant to human health.

Carcinogenicity: The National Toxicology Program (NTP, 1998) has conducted lifetime inhalation bioassays in rats and mice at concentrations up to 125 ppm and 250 ppm 2-butoxyethanol, respectively. NTP found no evidence of carcinogenic activity in male rats, equivocal evidence in female rats based on adrenal tumors, and some evidence in male and female mice based on liver hemangiosarcoma and forestomach tumors. The relevance of these findings to humans is questionable. NTP concludes that the human carcinogenic potential of this material cannot be determined at this time. [18,7-1,14-082400]

Silicic acid, disodium salt [CASRN 006834-92-0]

ACUTE TOXICITY

Oral LD50 (rat) = 847 mg/kg Eye irritation (rabbit): 0.1 ml, Corrosive
Skin irritation (rabbit): Moist skin, Corrosive (At 4 hrs.)

Sub chronic Data: In a study of rats fed sodium silicate in drinking water for three months, at 200, 600 and 1800 ppm, changes were reported in the blood chemistry of some animals, but no specific changes to the organs of the animals due to sodium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed sodium silicate in their diet at 2.4g/kg/day for 4 weeks, whereas rats fed the same dosage did not develop any treatment-related effects. Decreased numbers of births and survival to weaning was reported for rats fed sodium silicate in their drinking water at 600 and 1200 ppm.

Special Studies: Sodium silicate was not mutagenic to the bacterium E. Coli when tested in a mutagenicity bioassay. There are no known reports of carcinogenicity of sodium silicates. Frequent ingestion over extended periods of time of gram quantities of silicates is associated with the formation kidney stones and other siliceous urinary calculi in humans. Sodium silicate is not listed by IARC, NTP or OSHA as a carcinogen. [15,16-12,13,U,18,12-100200], [17,15-18,12,15-033100]

Section 12. Ecological Information

Sodium tripolyphosphate [CASRN 007758-29-4]

ECOTOXICITY 96-hr LC50 (rainbow trout) > 100 mg/L 48-hr EC50 (daphnia magna) > 1000 mg/L

Biodegradation: Studies have not been conducted since when dissolved/hydrolyzed in water it yields completely mineralized materials. [0,0-18,19,0-071000]

Ethanol, 2-(2-butoxyethoxy) [CASRN 000112-34-5]

ECOTOXICITY

LC50 (Poecilia reticulata) = 1150 mg/L LC50 (Lepomis macrochirus) = 1300 mg/L LC50 (Leuciscus idus) = 1805-2304 mg/L LC50 (Menidia beryllina) = 2000 mg/L
LC50 (Carassius auratus) = 2700 mg/L LC50 (Daphnia magna) = 2850 mg/L
LC50 (Notropis atherinoides) > 500 mg/L Growth inhibition IC50 (bacteria) = 255 mg/L

MOVEMENT & PARTITIONING: Bioconcentration potential is low (BCF less than 100 or Log Pow less than 3). Log octanol/water partition coefficient (log Pow) is 0.56. Potential for mobility in soil is high (Koc between 50 and 150). Log soil organic carbon partition coefficient (log Koc) is estimated to be 1.88. Henry's Law Constant (H) is estimated to be 1.52E-9 atm.m³/mol.

DEGRADATION & PERSISTENCE: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD greater than 40%). Degradation is expected in the atmospheric environment within minutes to hours. 5-Day biochemical oxygen demand (BOD5) is 0.05 p/p. 10-Day biochemical oxygen demand (BOD10) is 0.39 p/p. 20-Day biochemical oxygen demand (BOD20) is 1.08 p/p. Theoretical oxygen demand (ThOD) is calculated to be 2.17 p/p. Biodegradation rate may increase in soil and/or water with acclimation. [3-3,3,1,6,4-121600]

2-butoxyethanol [CASRN 000111-76-2]

ECOTOXICITY

48 h LC50 (Daphnia) > 1,000 mg/l 24 h TLm Brine shrimp = 1,000 mg/l
96 h LC50 Fathead minnow = 1,700 mg/l IC50 bacteria > 5,000 mg/l

DEGRADATION

BOD 5 = 26 % (O2 consumption) COD (measured) = 2.25 mg/mg
BOD10 = 74 % ThOD (calculated) = 2.10 - 2.30 mg/mg
BOD20 = 88 % Kow (measured) = 0.83
28 d Sturm test = 90% (CO2 evolved) [20,2-1,2,18-011701]

Silicic acid, disodium salt [CASRN 006834-92-0]

ECOTOXICITY

96 hr - LC50 (mosquitofish) = 530 mg/L 48 hr - LC50 (water flea) = 113 mg/L
96 hr EC50 (gambusia affinis) = 2,320 ppm 96 hr EC50 (amphipoda) = 160 ppm
96 hr - LC50 (scud) = 160 mg/L 28 d - LC50 (polychaete) = 210-250 g/L
96 hr EC50 (Lymnea) = 632 ppm 96 hr EC50 (daphnia magna) = 247 ppm
Terrestrial wildlife - Oral LD50 (mouse) = 770 mg/kg

Environmental Fate: This material is not persistent in aquatic systems, but its high pH when undiluted or unneutralized is acutely harmful to aquatic life. Diluted material yields dissolved silica in a form that is indistinguishable from natural dissolved silica. It does not contribute to BOD. This material does not bioaccumulate except in species that use silica as a structural material such as diatoms and siliceous sponges. Where abnormally low natural silica concentrations exist (less than 0.1 ppm), dissolved silica may be a limiting nutrient for diatoms and a few other aquatic algal species. However, the addition of excess dissolved silica over the limiting concentration will not stimulate the growth of diatom populations; their growth rate is independent of silica concentration once the limiting concentration is exceeded. Neither silica nor sodium will appreciably bioconcentrate up the food chain [14,23-20,C,G,18,12,15-121898], [15,16-12,13,U,18,12-100200]

Section 13. Disposal Considerations

Waste Disposal Methods (Federal, State, Local):

In accordance with all federal, state and local requirements.

RCRA Hazardous Waste Number: D002

Section 14. Transport Information

Hazardous Material Description:

(Proper shipping name, hazard class, hazard ID#, packing group)

Domestic ground non-bulk: CORROSIVE LIQUIDS, N.O.S., 8, UN1760, PG III (DISODIUM TRIOXOSILICATE, PHOSPHORIC ACID ESTER)

Domestic ground bulk: CORROSIVE LIQUIDS, N.O.S., 8, UN1760, PG III (DISODIUM TRIOXOSILICATE, PHOSPHORIC ACID ESTER)

International: CORROSIVE LIQUIDS, N.O.S., 8, UN1760, PG III (DISODIUM TRIOXOSILICATE, PHOSPHORIC ACID ESTER)

Section 15. Regulatory Information

SARA 313 Information

'This product contains the following chemical(s) above deminis concentrations and may be subject to reporting under section 313:

Reportable Category: Glycol ethers, 1 - 10%.

Section 16. Other Information

This MSDS contains revisions in the following sections: New format

Prepared by: John A. DiCerbo, IHIT Regulatory & Safety Coordinator

Revised by: Andrew J. Thomas Chemist

The development of this Material Safety Data Sheet (MSDS) relies upon information provided to us by each of our raw material suppliers. This MSDS will be updated as changes occur to their MSDS(s).

We believe the recommendations and technical information contained herein to be accurate. However, they are given without warranty or guarantee, expressed or implied, and we assume no responsibility for losses or damage, direct or indirect, as a result of their use.