



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
US OSHA

Revision date 10-Mar-2024

Supersedes Date: 17-Mar-2019

Revision Number 4.2

1. Identification

Product identifier

Product Name PHOSFLEX T-BEP

Other means of identification

Product Code(s) 7068

Chemical name Tris(2-butoxyethyl) phosphate

Synonyms Ethanol, 2-butoxy, phosphate (3:1) Tributoxyethyl phosphate Phosphoric acid, tributoxyethyl ester

Recommended use of the chemical and restrictions on use

Recommended use Flame-retardant plasticizer
Leveling Agent

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Address

ICL
622 Emerson Road - Suite 500
St. Louis, Missouri 63141, USA
Tel:(314)983-7884
e-mail:msdsinfo@icl-group.com

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300

2. Hazard(s) identification

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Hazard statements

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Appearance Clear liquid	Physical state Liquid	Odor Mild
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Other information

No information available

3. Composition/information on ingredients

Substance**Synonyms**

Ethanol, 2-butoxy, phosphate (3:1) Tributoxyethyl phosphate Phosphoric acid, tributoxyethyl ester

Chemical name	CAS No.	Weight-%	Trade secret
Tris(2-butoxyethyl) phosphate	78-51-3	100	Sk*

4. First-aid measures

Description of first aid measures**Inhalation**

Remove to fresh air.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

IngestionRinse mouth
Get medical attention if symptoms occur
NOTE: Never give an unconscious person anything to drink**Most important symptoms and effects, both acute and delayed****Symptoms**

No information available.

Indication of any immediate medical attention and special treatment needed**Note to physicians**

Treat symptomatically and supportively.

5. Fire-fighting measures

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical

May emit toxic and irritating fumes under fire conditions.

Hazardous combustion products

Carbon oxides. Phosphorus oxides. Phosphoric acids.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Special protective equipment and precautions for fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Cool containers with water spray. Contain runoff to prevent entry into water or drainage systems.

6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Personal precautions Ensure adequate ventilation. Avoid contact with skin, eyes, and clothing. Wear protective gloves/protective clothing and eye/face protection.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Soak up with sand or other suitable absorbant and dispose of as solid waste. Collect in suitable and properly labeled containers. Ventilate area and wash spill site after material pickup is complete.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. Handling and storage**Precautions for safe handling**

Advice on safe handling Keep containers tightly closed. Avoid bodily contact.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store in a dry, well-ventilated area. Noncorrosive to glass or metals. May soften or deteriorate certain plastics and elastomers (vinyl-based resins, neoprene and natural rubbers).
away from incompatible materials (see Section 10).

8. Exposure controls/personal protection**Control parameters**

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Tris(2-butoxyethyl) phosphate 78-51-3	-	-	-

Appropriate engineering controls

Engineering controls Showers

Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection	Chemical safety goggles.
Hand protection	Neoprene gloves
Skin and body protection	Wear suitable protective clothing.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear liquid
Color	Colorless
Odor	Mild
Odor threshold	Not determined

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	
Melting point / freezing point	-70°C (-94°F)	
Boiling point / boiling range	231 °C / 447.8 °F	
Flash point	132 °C / 269.6 °F	
Evaporation rate	< 1	
Flammability (solid, gas)	Not flammable .	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	0.03 mmHg (150°C)	
Vapor density	No data available	Not determined
Relative density	No data available	
Water solubility	< 2 g/l @ 20°C	
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	> 400	Not self-ignitable
Decomposition temperature		
Kinematic viscosity	No data available	None known
Dynamic viscosity	12mPas (20°C)	
<u>Other information</u>		
Explosive properties	No information available	
Oxidizing properties	No information available	
Softening point	No information available	
Molecular weight	No information available	
VOC content	No information available	
Liquid Density	1.012-1.018 g/ml (25°C)	
Bulk density	No information available	

10. Stability and reactivity

Reactivity	It hydrolyzes slowly at normal temperatures in acidic or alkaline aqueous solutions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Not expected.
Conditions to avoid	Exposure to air and moisture.
Incompatible materials	Strong oxidizers, strong acids and strong alkalis.
Hazardous decomposition products	Phosphoric acids. Carbon dioxide and carbon monoxide. Phosphorus oxides.

11. Toxicological information

Information on likely routes of exposure

Product Information .

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Tris(2-butoxyethyl) phosphate 78-51-3	> 2000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	>6.4 mg/L (4h) (Rat)

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Moderate irritant. Does not meet classification criteria.

Serious eye damage/eye irritation Not irritant.

Respiratory or skin sensitization Not a skin sensitizer

Germ cell mutagenicity Not mutagenic by the Ames Test and by mouse lymphoma assay.

Carcinogenicity Based on available data, the classification criteria are not met
The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical name	ACGIH	IARC	NTP	OSHA
Tris(2-butoxyethyl) phosphate 78-51-3	-	-	-	-

Reproductive toxicity	No information available.
Developmental toxicity	In a developmental toxicity study conducted in rats, the product did not adversely affect fetal development or cause terata. NOAEL >1500 mg/kg bw/day (rat, oral).
STOT - single exposure	No data available.
STOT - repeated exposure	No effects on specific target organs have been identified
Chronic toxicity	No data available
Neurological effects	The product was examined for acute delayed neurotoxicity potential in hens which were administered at the dose limit of 5 g/kg. The product did not express acute delayed peripheral neurotoxicity.
Aspiration hazard	Not expected.
Other adverse effects	No information available.

12. Ecological information

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Tris(2-butoxyethyl) phosphate 78-51-3	EC50: =61 mg/L 72h	LC50: =24 mg/L 96h	EC50: >1000 mg/L (Activated sludge, 3h)	EC50: =53 mg/L (Daphnia magna, 48h)

Persistence and degradability Readily biodegradable.

Bioaccumulation Not expected to bioaccumulate.

Component Information

Chemical name	Partition coefficient
Tris(2-butoxyethyl) phosphate 78-51-3	3.75

Mobility in soil No data available.

Other adverse effects No information available

13. Disposal considerations

Waste treatment methods

Waste from residues/unused Dispose of in accordance with local regulations. Dispose of waste in accordance with

products	environmental legislation.
Contaminated packaging	Dispose of in a safe manner in accordance with local/national regulations.
US EPA Waste Number	D002.

14. Transport information

<u>DOT</u>	Not regulated
<u>TDG</u>	Not regulated
<u>MEX</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG</u>	Not regulated

15. Regulatory information

International Inventories

GHS hazardous component CAS registry numbers appearing in section 3 may differ from substances appearing in section 15 due to country or regional chemical inventory coverage requirements, however, remain in compliance with the inventory. Products that are used as food additives are exempt from listing in international chemical inventories.

For further details on the regulatory status for this product in a specific country, please send your inquiry to the following email address: msdsinfo@icl-group.com

Chemical name	TSCA Inventory List Active/Inactive
Tris(2-butoxyethyl) phosphate 78-51-3 (100)	Present (ACTIVE)

TSCA	Listed or exempted
DSL	Listed or exempted
ENCS	Listed or exempted
IECSC	Listed or exempted
KECL	Listed or exempted
PICCS	Listed or exempted
AIIC	Listed or exempted
NZIoC	Listed or exempted
TCSI	Listed or exempted
NCI	Listed or exempted
TECI	Listed or exempted
NSQ	Listed or exempted

Legend:

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL** - Canadian Domestic Substances List
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AIIC** - Australian Inventory of Industrial Chemicals
- NZIoC** - New Zealand Inventory of Chemicals

TCSI - Taiwan Chemical Substance Inventory
NCI - Vietnam National Chemicals Inventory
TECI - Thailand Inventory FDA Existing Chemicals
NSQ - Mexico National Inventory of Chemical Substances

US Federal Regulations

Chemical name	U.S. - TSCA (Toxic Substances Control Act) - Section 5(a)(2) - Chemicals with Significant New Use Rules (SNURs)
Tris(2-butoxyethyl) phosphate - 78-51-3	-

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Tris(2-butoxyethyl) phosphate - 78-51-3	-

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Tris(2-butoxyethyl) phosphate 78-51-3	-	-	-	-

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	Reportable Quantity (RQ)
Tris(2-butoxyethyl) phosphate 78-51-3	-	-	

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	Health hazards 1	Flammability 1	Instability 0	Special hazards -
HMIS	Health hazards 2	Flammability 1	Physical hazards 0	Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AEGl(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 National Institute of Technology and Evaluation (NITE)
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program
 Organization for Economic Co-operation and Development Screening Information Data Set
 World Health Organization

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Revision date 10-Mar-2024

Revision Note The symbol (***) in the margin of this SDS indicates that this line has been revised.

Disclaimer

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, we make no representations as to the completeness or accuracy thereof. Information is supplied to you upon the condition that the persons receiving the information will make their own determination as to its safety and suitability for their purposes prior to use. In no event will we be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information. In addition, we shall not be liable for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices or from any hazards inherent in the nature of the product.

End of Safety Data Sheet