



SAFETY DATA SHEET

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

Revision date 17-Mar-2019

Supersedes Date: 29-Aug-2018

Revision Number 4.1

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-IP America Inc.
622 Emerson Road - Suite 500
St. Louis, Missouri 63141, USA
Tel:(314)983-7884 Fax:(314)983-7607
e-mail:msdsinfo@icl-group.com

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300
Medical: PROSAR 1-888-875-1685 (24HRS)

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

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

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

Other information

Not applicable

3. Composition/information on ingredients**Substance**

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

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.
Ingestion	If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately. NOTE: Never give an unconscious person anything to drink

Most important symptoms and effects, both acute and delayed

Symptoms	No information available.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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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 fumes under fire conditions.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

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

Personal precautions	Ensure adequate ventilation.
<u>Methods and material for containment and cleaning up</u>	
Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Pick up and transfer to properly labeled containers.
Environmental precautions	Should not be released into the environment. See Section 12 for additional Ecological Information.
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 The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
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

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.

Skin and body protection No special protective equipment 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 colorless liquid
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)	No data available	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	Not determined	
Relative density	1.292 g/mL (20°C)	
Water solubility	< 2 g/l @ 20°C	
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	Not self-ignitable	
Decomposition temperature	Not available	
Dynamic viscosity	12mPas (20°C)	
<u>Other information</u>		
Oxidizing properties	No data available	
Explosive properties	No data 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 to occur.
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

Component Information

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/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	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	US 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.
STOT - single exposure	No data available.
STOT - repeated exposure	No information available.
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 to occur.

12. Ecological information

Ecotoxicity

Component Information

Chemical name	Algae/aquatic plants	Fish	Crustacea
Tris(2-butoxyethyl) phosphate 78-51-3	61 mg/L 72h	24 mg/L 96h	53 mg/L 48h

Persistence and degradability	READILY BIODEGRADABLE.
Bioaccumulation	Not expected to bioaccumulate. Not expected to bioaccumulate.

Component Information

Chemical name	Partition coefficient
Tris(2-butoxyethyl) phosphate 78-51-3	3.65 - 4.78

Other adverse effects	Germany, water endangering classes (WGK) 1.
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13. Disposal considerations

Waste treatment methods

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

14. Transport information

IMDG	Not regulated
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not relevant
ICAO/IATA	Not regulated
DOT	Not regulated

15. Regulatory information

International Inventories

TSCA	Listed
DSL/NDSL	Listed
EINECS/ELINCS	Listed
ENCS	Listed
IECSC	Listed
KECL	Listed
PICCS	Listed
AICS	Listed
TCSI	Listed
NCI	Listed
TECI	Listed
NSQ	Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
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
AICS - Australian Inventory of Chemical Substances
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

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.

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. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard 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
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**US State Regulations**

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

Chemical name	New Jersey	Massachusetts	Pennsylvania
Tris(2-butoxyethyl) phosphate 78-51-3	-	-	-

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	Health hazards 1	Flammability 1	Instability 0	Physical and chemical properties -
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	*	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) (AEG L(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)
Japan GHS Classification
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
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

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