



SAFETY DATA SHEET

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

Revision date 12-Dec-2019

Supersedes Date: 31-Aug-2015

Revision Number 6

1. Identification

Product identifier

Product Name PHOSFLEX 390

Other means of identification

Product Code(s) 7016

Chemical name Diphenyl isodecyl phosphate

Chemical Family Alkyl/aryl phosphate

Synonyms Isodecyl diphenyl phosphate. Phosphoric acid, isodecyl, diphenyl ester

Recommended use of the chemical and restrictions on use

Recommended use Flame-retardant plasticizer

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 Fax:(314)983-7607
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

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****Component information**

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

Chemical name	CAS No.	Weight-%
Diphenyl isodecyl phosphate	29761-21-5	~90
Triphenyl phosphate	115-86-6	<5

4. First-aid measures**Description of first aid measures**

Inhalation	Supply fresh air; consult doctor in case of symptoms.
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 and supportively.
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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.
Hazardous combustion products	Phosphorus oxides. Carbon oxides.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

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

Personal precautions	Ensure adequate ventilation.
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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	Take up with sand or other noncombustible absorbent material and place into containers for later disposal. Ventilate area and wash spill site after material pickup is complete.
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 Handle in accordance with good industrial hygiene and safety practice.
Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep container tightly closed in a dry and well-ventilated place. away from incompatible materials (see Section 10). Maximum recommended storage temperature of 65°C (149°F).
Packaging materials	Noncorrosive to glass or metals. May soften or deteriorate certain plastics and elastomers (vinyl-based resins and synthetic rubbers).

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
Diphenyl isodecyl phosphate 29761-21-5	-	-	-
Triphenyl phosphate 115-86-6	TWA: 3 mg/m ³	TWA: 3 mg/m ³ (vacated) TWA: 3 mg/m ³	IDLH: 1000 mg/m ³ TWA: 3 mg/m ³

Appropriate engineering controls

Engineering controls	Showers Eyewash stations Ventilation systems
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Individual protection measures, such as personal protective equipment

Eye/face protection	Chemical safety goggles.
Hand protection	Protective gloves Neoprene gloves
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. In case of insufficient ventilation, wear suitable respiratory equipment.
Skin and body protection	Wear suitable protective clothing.
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, transparent liquid
Odor	None
Odor threshold	Not available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	no data available	
Melting point / freezing point	<-50°C	
Boiling point / boiling range	249 °C / 480.2 °F	10 mmHg
Flash point	240 °C / 464 °F	
Evaporation rate	no data available	None known
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	0.5 mmHg (200°C)	
Vapor density	Not available	
Relative density	1.09 g/mL (25°C)	
Water solubility	11.2 µg/mL @ 23.5°C	
Solubility in other solvents	no data available	
Partition coefficient	no data available	
Autoignition temperature	no data available	
Decomposition temperature	>221°C	
Kinematic viscosity	22.5	@ 25 °C
Dynamic viscosity	no data available	

Other information

Oxidizing properties	The structure indicates non oxidizing properties
Explosive properties	There are no chemical groups associated with explosive properties present in the molecule
Molecular weight	390 g/mol

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	None under normal processing.
Conditions to avoid	Heating above decomposition temperature.
Incompatible materials	Strong oxidizing agents, strong acids, and strong bases.
Hazardous decomposition products	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
Diphenyl isodecyl phosphate 29761-21-5	7940 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	6.3 mg/L (Rat) 4h
Triphenyl phosphate 115-86-6	> 20000 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	> 200000 mg/m ³ (Rat) 1 h

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

Skin corrosion/irritation Not irritant.

Serious eye damage/irritation Not irritant.

Respiratory or skin sensitization Not a skin sensitizer.

Germ cell mutagenicity Not mutagenic in several in vitro assays.

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

Chemical name	ACGIH	IARC	NTP	US OSHA
Diphenyl isodecyl phosphate 29761-21-5	-	-	-	-
Triphenyl phosphate 115-86-6	-	-	-	-

Reproductive toxicity This product does not contain any known or suspected reproductive hazards. NOAEL 3000 mg/kg bw/day (rat, oral).

STOT - single exposure No effects on specific target organs have been identified.

STOT - repeated exposure No effects on specific target organs have been identified.

Target organ effects blood, Peripheral Nervous System (PNS).

Aspiration hazard Not expected.

12. Ecological information

Ecotoxicity .

Note The aquatic toxicity was tested above the solubility level

Component information

Chemical name	Algae/aquatic plants	Fish	Crustacea	Toxicity to microorganisms
Diphenyl isodecyl phosphate 29761-21-5	EC50: 79 mg/L (96h, Pseudokirchnerella subcapitata)	LC50: 7.6 mg/L (96h, Oncorhynchus mykiss)	EC50: 0.34 mg/L (48h, Daphnia magna)	-
Triphenyl phosphate 115-86-6	EC50: 0.6 - 4mg/L (96h, Pseudokirchnerella subcapitata)	LC50: 0.4 mg/L (96h)	EC50: 0.18-0.32 mg/L (Daphnia magna, 48h)	-

Persistence and degradability Readily biodegradable.

Bioaccumulation Not bioaccumulative. BCF=677.

Component information

Chemical name	Partition coefficient
Diphenyl isodecyl phosphate 29761-21-5	6.11
Triphenyl phosphate 115-86-6	4.59

Mobility Not Applicable. Readily biodegradable.

Other adverse effects No information available.

13. Disposal considerations

Waste treatment methods

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

Contaminated packaging Empty containers should be disposed of in accordance with all applicable laws and regulations.

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

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

TSCA	Listed or exempted
DSL	Listed or exempted
ENCS	Listed or exempted
IECSC	Listed or exempted
KECL	Listed or exempted
PICCS	Listed or exempted
AICS	Listed or exempted
NZIoC	Listed or exempted
TCSI	Listed or exempted
NCI	Not Listed
TECI	Not Listed
NSQ	Not Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-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
AICS - Australian Inventory of Chemical Substances
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)
Diphenyl isodecyl phosphate - 29761-21-5	-
Triphenyl phosphate - 115-86-6	-

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
Diphenyl isodecyl phosphate 29761-21-5	-	-	-	-
Triphenyl phosphate 115-86-6	-	-	-	-

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
Diphenyl isodecyl phosphate 29761-21-5	-	-
Triphenyl phosphate 115-86-6	-	-

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
Diphenyl isodecyl phosphate 29761-21-5	-	-	-
Triphenyl phosphate 115-86-6	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not Applicable

16. Other information

NFPA	Health hazards 0	Flammability 1	Instability 0	Physical and chemical properties -
HMIS	Health hazards 0	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)
 European Chemicals Agency
 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)
 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
 World Health Organization

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