

MATERIAL SAFETY DATA SHEET

NFPA	HMIS	Personal Protective Equipment
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Health Hazard	2
Fire Hazard	1
Reactivity	0



See Section 8.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product code:	T2794
Product Name:	TRIMETHYL PHOSPHATE
Chemical Name:	Phosphoric acid, trimethyl ester
Synonyms:	Methyl phosphate O,O,O-Trimethyl phosphate Trimethoxyphosphine oxide Trimethyl orthophosphate Trimethylphosphate
Recommended use:	Gasoline additive. Stabilizer. Antioxidant.
CAS #:	512-56-1
Formula:	C3-H9-O4-P
RTECS #	TC8225000
CI#:	Not available
Supplier:	Spectrum Chemicals and Laboratory Products, Inc. 14422 South San Pedro St. Gardena, CA 90248 (310) 516-8000
Order Online At:	https://www.spectrumchemical.com
Emergency Telephone Number:	CHEMTREC: 1-800-424-9300
Contact Person:	Regina Wachenheim (East Coast)
Contact Person:	Martin LaBenz (West Coast)

2. HAZARDS IDENTIFICATION

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING! IRRITANT

Irritating to skin

Irritating to eyes

Harmful if swallowed

Odor:

Pleasant. Sweetish.

Physical state:

Liquid.

Appearance:

No information available

Color:

Clear. Colorless. Light yellow.

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

POTENTIAL HEALTH EFFECTS

Principal Routes of Exposure:

Ingestion. Skin. Eyes.

Acute Potential Health Effects:

Skin Contact:

Irritating to skin. It may be absorbed through the skin. If absorbed through the skin it may affect behavior/central nervous system and cause central nervous system effects.

Eye Contact:

Causes eye irritation.

Inhalation:

May cause irritation of respiratory tract. May cause central nervous system effects.

Ingestion:

Harmful if swallowed. May cause central nervous system effects. May affect the blood.

Chronic Potential Health Effects:

Component

Trimethyl Phosphate
512-56-1 (100)

Carcinogen Status:

No information available

Target Organs:

Central nervous system. Nervous system. Kidneys.

Mutagenic Effects:

May affect genetic material
Mutations in microorganisms
Experiments with bacteria and/or yeast have shown mutagenic effects
Experiments with human lymphocytes have shown mutagenic effects
Mutagenic effects on mammalian germ cells

Teratogenic Effects:

No information available

Aggravated Medical Conditions: No information available

See Section 11 for additional Toxicological Information

POTENTIAL ENVIRONMENTAL EFFECTS

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Trimethyl Phosphate	512-56-1	100

4. FIRST AID MEASURES

General Advice:	Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126)
Skin Contact:	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.
Eye Contact:	Flush eye with water for 15 minutes. Get medical attention.
Inhalation:	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion:	Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.
Notes to Physician:	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Properties

Flashpoint (°C/°F):	107 °C/224.60 °F
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Flash Point Tested according to: Not available
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Lower Explosion Limit (%):	No information available
Upper Explosion Limit (%):	No information available

Autoignition Temperature (°C/°F):	No information available
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Suitable Extinguishing Media:	Dry chemical. Water spray mist or foam.
Unsuitable Extinguishing Media:	Do not use water jet.
Hazardous Combustion Products:	Carbon oxides; Phosphorous oxides
Specific hazards:	May be combustible at high temperatures May be ignited by heat, sparks or flames Container explosion may occur under fire conditions or when heated
Special Protective Equipment for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear
Specific Methods:	No information available.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Remove all sources of ignition.

Environmental Precautions:

No special environmental precautions required

Methods for Cleaning Up:

Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container.

7. HANDLING AND STORAGE

Handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. Handle in accordance with good industrial hygiene and safety practice.

Storage

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents. Bases. Carbon Steel.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Personal Protective Equipment

Eye protection: Goggles.

Skin and body protection: Chemical resistant apron. Long sleeved clothing. Gloves.

Respiratory protection: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

National occupational exposure limits

United States

U.S Occupational Exposure Limits: Not determined

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Trimethyl Phosphate - 512-56-1	None	None	None	None

Canada

Canada Occupational Exposure Limits: Not determined

Components	Alberta	British Columbia	Ontario	Quebec
Trimethyl Phosphate 512-56-1	None	None	None	None

Australia and Mexico

Occupational Exposure Limits for Australia and Mexico: Not determined

Components	Australia	Mexico
Trimethyl Phosphate 512-56-1	None	None

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:

Liquid.

Appearance:

No information available

Color:

Clear. Colorless. Light yellow.

Odor:

Pleasant. Sweetish.

Molecular/Formula weight:

140.08

Taste

No information available

Flash point (°C):

107

Lower Explosion Limit (%):

No information available

Upper Explosion Limit (%):

No information available

Autoignition Temperature (°C/°F):

No information available

Melting point/range(°C/°F):

-46 °C/-50.80 °F

Boiling point/range(°C/°F):

193-197 °C/379.4-386.6 °F

pH:

No information available

Decomposition temperature(°C/°F):

No information available

Specific gravity:

1.2144 @ 20 °C

Density (g/cm³):

1.2

Bulk density:

No information available

Vapor pressure @ 20°C (kPa):

0.11 @ 25 °C

Evaporation rate:

No information available

Vapor density:

6.28

VOC content (g/L):

No information available

Odor threshold (ppm):

No information available

Partition coefficient

(n-octanol/water):

No information available

Miscibility:

No information available

Solubility:

Soluble in Water

Solubility in Water: 500 g/l @ 25 °C

10. STABILITY AND REACTIVITY

Stability:

Stable at normal conditions

Conditions to avoid:

Heat. Ignition sources.

Incompatible Materials:

Oxidizing agents. Bases. Carbon Steel.

Hazardous decomposition products:

Carbon monoxide. Carbon dioxide. Phosphorus oxides and/or phosphine. When heated to decomposition it emits toxic fumes.

Possibility of Hazardous Reactions: No information available

Polymerization: Hazardous polymerisation does not occur

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Trimethyl Phosphate - 512-56-1

LD50/oral/rat = 840 mg/kg Oral LD50 Rat

LD50/oral/mouse = 1470 mg/kg

LD50/dermal/rat =

No information available

LD50/dermal/rabbit = = 2830 µL/kg Dermal LD50 Rabbit

LC50/inhalation/rat = No information available

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information =

No information available

Product Information

LC50/inhalation/rat No information available

LC50/Inhalation/mouse No information available

LD50/dermal/rabbit 2830 µL/kg

LD50/dermal/rat No information available

LD50/oral/mouse = 1470 mg/kg

LD50/oral/rat = 840 mg/kg

Local Effects

Skin irritation: Irritating to skin.

Eye irritation: Causes eye irritation.

Inhalation: May cause irritation of respiratory tract. May cause central nervous system effects, central nervous system depression.

Ingestion: May be harmful if swallowed. May cause nausea. May cause difficulty breathing. May affect behavior/central nervous system (excitement, headache, dizziness, drowsiness, somnolence, tremor, muscle weakness, convulsions). Advanced stages may result in cardiovascular collapse, unconsciouness, coma, and possible death to respiratory failure.

Sensitization: No information available

Chronic Toxicity

Chronic Toxicity

Prolonged or repeated ingestion may cause weight loss. Prolonged or repeated inhalation may cause central nervous system effects. Prolonged or repeated ingestion may affect behavior/central nervous system. Prolonged or repeated ingestion may affect the peripheral nervous system (flaccid paralysis usually from neuromuscular blockage). Prolonged or repeated ingestion may affect the urinary system. Prolonged or repeated ingestion may affect the blood (red blood cell count; pigmented or nucleated red blood cells). Prolonged or repeated ingestion may affect the endocrine system.

Carcinogenic effects: Limited evidence of a carcinogenic effect.

Components	NTP	IARC	OSHA HCS - Carcinogens	ACGIH - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Trimethyl Phosphate	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects: May affect genetic material
Mutations in microorganisms
Experiments with bacteria and/or yeast have shown mutagenic effects
Experiments with human lymphocytes have shown mutagenic effects
Mutagenic effects on mammalian germ cells

Reproductive Effects: May cause adverse reproductive effects based on animal data
Experiments have shown reproductive toxicity effects on laboratory animals
No information on reproductive toxicity effects on humans was found
May cause adverse developmental effects based on animal data

Teratogenic Effects: No information available

Target Organs: Central nervous system. Nervous system. Kidneys.

12. ECOLOGICAL INFORMATION

ECOTOXICITY

Toxicity to terrestrial and aquatic plants and animals: Information given is based on data on the components and the ecotoxicology of similar products

Ecotoxicity effects: Aquatic environment.

Aquatic toxicity:

Trimethyl Phosphate - 512-56-1

Freshwater Fish Species Data: 6480-7580 mg/L LC50 Pimephales promelas 96 h flow-through 1

Mobility: No information available

Persistence and degradability: No information available

Bioaccumulative potential: No information available

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Trimethyl Phosphate	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: Not regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: None
Subsidiary Risk: Not applicable
Marine Pollutant: No data available
ERG No: No information available
DOT RQ (lbs): No information available

TDG (Canada)

UN-No: Not regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Description: No information available

ADR

UN-No: Not regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: Not regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: Not regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available

ICAO

UN-No: Not regulated

Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Description: No information available

IATA

UN-No: Not regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	Philippines (PICCS)	KOREA KECL	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Trimethyl Phosphate</i>	Present	Present	Present KE-28647	2-2000	Present	Present	Present 208-144-8

U.S. Regulations

Trimethyl Phosphate
Massachusetts RTK: Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:
 WARNING: This product contains a chemical known to the State of California to cause cancer. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
 This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>Trimethyl Phosphate</i>	carcinogen	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
<i>Trimethyl Phosphate</i>	None	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
<i>Trimethyl Phosphate</i>	Not Applicable	Not Applicable

Canada

WHMIS hazard class:
 D2B Toxic materials
 D2A Very toxic materials

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Trimethyl Phosphate	0.1 %

Inventory

Components	Canada (DSL)	Canada (NDSL)
Trimethyl Phosphate	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Trimethyl Phosphate	Not listed	Not listed

EU Classification**R-phrase(s)**

R22 - Harmful if swallowed.

R40 - Limited evidence of a carcinogenic effect

R68 - Possible risk of irreversible effects.

S -phrase(s)

S46 - If swallowed, seek medical advice immediately and show this container or label.

S36/37 - Wear suitable protective clothing and gloves.

Components	Classification	Concentration Limits:	Safety Phrases
Trimethyl Phosphate		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

Xn - Harmful.

Xn

**16. OTHER INFORMATION**

The MSDS format complies with ANSI Z400.1/Z129.1-2010 standards.

Preparation Date: 07-Nov-2013

Reason for revision: Not applicable

Prepared by: Sonia Owen

Product code: T2794

Product name: TRIMETHYL
PHOSPHATE

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Literature reference:

No information available

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. The physical properties reported in this MSDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.