

Section 1. Product and Company Identification

Product Name Triethyl Orthoformate
CAS Number 122-51-0

Parchem - fine & specialty chemicals
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EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture

Skin Corrosion/Irritation Category 2
Serious eye damage/eye irritation Category 2
Specific target organ toxicity (single exposure) Category 3
Flammable liquids Category 3

GHS Label Elements

Pictograms:



Signal word: WARNING

Hazard and precautionary statements

Hazard Statements

Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation. May cause drowsiness or dizziness
Flammable liquid and vapor.

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed



Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Precautionary Statements - Response

Specific treatment (see supplemental first aid instructions on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
In case of fire: Use CO₂, dry chemical, or foam for extinction

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC): None known

Appearance: Colorless Transparent

Physical State: Liquid

Odor: Pungent

Section 3. Composition / Information on Ingredients

Common Name Triethyl Orthoformate
Synonym(s) Ethane, 1,1',1'',-(Methylidynetris(Oxy))Tris-
Formula C₇H₁₆O₃
CAS Number 122-51-0

COMPONENT	CAS NUMBER	CONCENTRATION
Triethyl Orthoformate	122-51-0	100%

Section 4. First Aid Measures

General Advice: Show this safety data sheet to the doctor in attendance.

Eye Contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult a physician.



Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. Consult a physician.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Consult a physician.

Ingestion: Do not induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Consult a physician.

Protection of First-aiders: Remove all sources of ignition. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Most Important Symptoms and Effects, both Acute and Delayed

Main Symptoms: No information available.

Indication of any Immediate Medical Attention and Special Treatment Needed

Notes to Physician: Treat symptomatically.

Section 5. Firefighting Measures

Flammable Properties: Flammable liquid. Vapors may cause flash fire or explosion.

Suitable Extinguishing Media: Water spray. Carbon dioxide (CO₂). Dry powder. Foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media: Water. Do not use straight streams of water.

Hazardous Combustion Products: Thermal decomposition or combustion may produce hazardous gases and/or materials.

Explosion Data

Sensitivity to Mechanical Impact: Not available.

Sensitivity to Static Discharge: Not available.

Specific Hazards Arising from the Chemical: Keep product and empty container away from heat and sources of ignition. Flash back possible over considerable distance. Container explosion may occur under fire conditions.

Protective Equipment and Precautions for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions: Evacuate personnel to safe areas. Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes, and clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Pay attention to flashback.

Other Information: Not applicable.



Environmental Precautions: Local authorities should be advised if significant spillages cannot be contained. Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Should not be released into the environment.

Methods and Material for Containment and Cleaning-up

Methods for Containment: Not available.

Methods for Cleaning-up: Evacuate personnel to safe areas. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Clean contaminated surface thoroughly. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Ground and bond containers when transferring material. Take precautionary measures against static discharges.

Section 7. Handling and Storage

Precautions for Safe Handling

Handling: Use only in an area equipped with a safety shower. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation. Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Avoid repeated exposure. Keep away from open flames, hot surfaces and sources of ignition. To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded.

Conditions for safe storage, including any incompatibilities

Storage: Keep container tightly closed. Keep in properly labelled containers. Keep away from open flames, hot surfaces and sources of ignition. Protect from moisture. Protect from water.

Incompatible Materials Acids: Oxidizing agents.

Section 8. Exposure Controls / Personal Protection

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate Engineering Controls

Engineering Controls: Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/face Protection: Tightly fitting safety goggles.

Skin and Body Protection: Wear protective gloves and protective clothing.

Respiratory Protection: In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations: Handle in accordance with good industrial hygiene and safety practice.

Section 9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Appearance: Colorless transparent

Physical State: Liquid

Odor: Pungent

Odor Threshold: No information available

Property

pH: No data available

Melting/Freezing Point: -61°C

Boiling Point/Range: 144 - 146°C

Flash Point: 35°C / 95°F Closed cup

Evaporation Rate: -

Flammability Limits in Air

Upper Flammability Limit: 25.1%

Lower Flammability Limit: 0.7%

Vapor Pressure: 4 hPa at 20°C

Vapor Density: 5.11 g/L

Specific Gravity: 0.90 g/cm³ at 20°C

Water Solubility: 1.35 g/L (decomposes)

Solubility in Other Solvents: No information available

Partition Coefficient: n-Octanol/Water: Not available

Autoignition Temp: 180 °C

Decomposition Temperature: No data available

Viscosity, Kinematic: No information available

Viscosity, Dynamic: Not available

Explosive Properties: No information available

Oxidizing Properties: No information available

Other Information

Softening Point: No information available

Molecular Weight: 148.2

VOC Content: No information available

Density: No information available

Bulk Density: No information available

Section 10. Stability and Reactivity

Reactivity: Not applicable.



Chemical Stability: Stable under normal conditions

Conditions to Avoid: Keep away from open flames, hot surfaces and sources of ignition. Avoid moisture.

Incompatible Materials: Acids. Oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide Carbon dioxide (CO₂)

Possibility of Hazardous Reactions: None under normal processing

Section 11. Toxicological Information

Product Information

LD50 Oral: = 7060 mg/kg (Rat)

LD50 Dermal: = 20 mL/kg (Rabbit)

LC50 Inhalation: -

The following Values are calculated based on Chapter 3.1 of the GHS Document

ATEmix (Oral): 7060 mg/kg

ATEmix (Dermal): 18000 mg/kg

Information on likely Routes of Exposure

Eyes: Irritating to eyes. Avoid contact with eyes.

Skin: May be harmful by skin contact. Irritating to skin. Avoid contact with skin.

Inhalation: May be harmful by inhalation. May cause irritation of the mucous membranes. May cause irritation of respiratory tract. Vapors may cause dizziness or suffocation. Avoid breathing vapors or mists.

Ingestion: May be harmful if swallowed. May cause irritation of the digestive tract. Do not ingest.

Information on Toxicological Effects: No information available.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-Term Exposure

Irritation: Eye, rabbit: 100 mg/24 hr MOD; Skin, rabbit: 500 mg/24 hr MLD

Eye Damage/Irritation: No information available

Skin Corrosion/Irritation: No information available

Sensitization: No information available

Reproductive Effects: No information available

Mutagenic Effects: No information available

Developmental Effects: No information available

STOT - Single Exposure: No information available

STOT - Repeated Exposure: No information available

Chronic Toxicity: No information available

Aspiration Hazard: No information available

Numerical Measures of Toxicity - Product Information

Acute Toxicity: 100 % of the mixture consists of ingredient(s) of unknown toxicity



Section 12. Ecological Information

Ecotoxicity: There is no known ecological information for this product. 100% of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Persistence/Degradability: No information available.

Bioaccumulation/Accumulation: No information available.

Mobility in Soil: No information available.

log Pow: 1.2

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT

UN-No: UN2524

Proper Shipping Name: Ethyl orthoformate

Hazard Class: 3

Packing Group: III

Description: UN2524, Ethyl orthoformate, 3, PG III

Emergency Response Guide Number: 129

TDG

UN-No: UN2524

Proper Shipping Name: Ethyl orthoformate

Hazard Class: 3

Packing Group: III

Description: UN2524, Ethyl orthoformate, 3, PG III

MEX

UN-No: UN2524

Hazard Class: 3

Packing Group: III

Description: UN2524, Ethyl orthoformate, 3, PG III

ICAO

UN-No: UN2524

Proper Shipping Name: Ethyl orthoformate

Hazard Class: 3

Packing Group: III

Description: UN2524, Ethyl orthoformate, 3, PG III



IATA

UN-No: UN2524

Hazard Class: 3

Packing Group: III

Description: UN2524, Ethyl orthoformate, 3, PG III

IMDG/IMO

UN-No: UN2524

Hazard Class: 3

Packing Group: III

EmS No.: F-E, S-D

Description: UN2524, Ethyl orthoformate, 3, PG III

RID

UN-No: UN2524

Hazard Class: 3

Packing Group: III

Description: UN2524, Ethyl orthoformate, 3, PG III

ADR/RID-Labels: 3

ADR

UN-No: UN2524

Proper Shipping Name: Ethyl orthoformate

Hazard Class: 3

Packing Group: III

Classification Code: F1

Description: UN2524, Ethyl orthoformate, 3, PG III

ADR/RID-Labels: 3

ADN

Proper Shipping Name: Ethyl orthoformate

Hazard Class: 3

Packing Group: III

Classification Code: F1

Description: UN2524, Ethyl orthoformate, 3, PG III

Hazard Labels: 3

Limited Quantity: 5 L

Section 15. Regulatory Information

International Inventories

U.S.A. (TSCA): Complies



Canada (DSL): Complies
EU (EINECS): Complies
EU (ELINCS): Does not comply
Japan (ENCS): Complies
China: Complies
Korea (KECL): Complies
Philippines (PICCS): Complies
Australia (AICS): Complies

U.S.A. (TSCA): Present
Canada (DSL): Present
EU (EINECS): Present
EU (ELINCS): -

Japan (ENCS): Present (2)-683
China: Present
Korea (KECL): Present
Philippines (PICCS): Present
Australia (AICS): Present

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 Hazardous Categorization

Acute Health Hazard: Yes
Chronic Health Hazard: No
Fire Hazard: Yes
Sudden Release of Pressure Hazard: No
Reactive Hazard: No

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61): This product does not contain any HAPs.

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)

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

STATE REGULATIONS

California Proposition 65: This product does not contain any Proposition 65 chemicals.



State Right-to-Know: This product contains the following State Right-to-Know chemicals:

New Jersey: sn 0900

Massachusetts:

Illinois:

Rhode Island:

Pennsylvania: Present

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

CANADA

WHMIS Statement: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

NFPA

Health: 2

Flammability: 3

Instability: 0

Physical Hazard: 0

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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