



## MATERIAL SAFETY DATA SHEET

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Issue Date:

### 1- Chemical Product Information and Company Identification.

**Product Name:** : Triethyl Ortho formate GC reference standard, AnStan<sup>®</sup>.  
**Synonym:** : Ethyl orthoformate.  
**Product code:** : BS14095.  
**CAS Number:** : 122-51-0.  
**Company Name:** : Briti Scientific.  
**Company Address:** : Plot No:78/B/13, SY-79,Phase-VI, Jeedimetla,Hyderabad-500 055.  
Telangana, India.

### Section 2- Composition / Information on Ingredients.

CAS No.	Chemical Name	Mol. Formula
122-51-0	Ethyl orthoformate	C <sub>7</sub> H <sub>16</sub> O <sub>3</sub> .

### Section 3- Hazards Identification.

#### Classification

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)  
Flammable liquids: Category 3  
Specific target organ toxicity (single exposure): Category 3  
Target Organs - Respiratory system.

#### Label Elements

Signal Word: Warning

**Hazard Statements:** Flammable liquid and vapor. May cause respiratory irritation.



#### Precautionary Statements

**Prevention:** 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.

Wear protective gloves/protective clothing/eye protection/face protection Keep cool.

**Inhalation:**

**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.

**Skin**

**IF ON SKIN (or hair):** Take off immediately all contaminated clothing. Rinse skin with water/shower.

**Fire In case of fire:** Use CO<sub>2</sub>, dry chemical, or foam for extinction.

**Storage:** Store in a well-ventilated place. Keep container tightly closed, Store locked up.

**Disposal:** Dispose of contents/container to an approved

**Hazards not otherwise classified (HNOC)**

None identified

**Section 4- First Aid Measures.**

**Eye Contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Get medical attention if symptoms occur.

**Skin Contact:** Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

**Ingestion:** Do NOT induce vomiting. Get medical attention.

**Most important symptoms and effects:** Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

**Notes to Physician:** Treat symptomatically.

**Section 5- Fire Fighting Measures.**

**Suitable Extinguishing Media:** Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam. Water mist maybe used to cool closed containers.

**Unsuitable Extinguishing Media:** No information available.

**Flash Point:** 35 °C / 95 °F.

**Method -** No information available.

**Autoignition Temperature:** 180 °C / 356 °F.

**Explosion Limits:**

Upper No data available

Lower No data available

**Sensitivity to Mechanical Impact:** No information available.

**Specific Hazards Arising from the Chemical:**

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.





**Hazardous Combustion Product:** Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

**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.

**NFPA**

Health	Flammability	Instability	Physical hazards
2	2	0	N/A

**Section 6- Accidental Release Measures.**

**Personal Precautions:** Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

**Environmental Precautions:** Should not be released into the environment. See Section 12 for additional Ecological Information.

**Methods for Containment and Clean Up:** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

**Section 7- Handling and Storage.**

**Handling:** Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong oxidizing agents.

**Section 8- Exposure Control/Personal Protection.**

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

**Engineering Measures:** Ensure that eyewash stations and safety showers are close to the work station location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment.

**Personal Protective Equipment**

**Eye/face Protection:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection:** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.





**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety practice.

### Section 9- Physical and Chemical Properties.

<b>Appearance:</b>	Colorless to Almost colorless clear liquid.
<b>Odor:</b>	Irritating.
<b>Odor Threshold:</b>	No information available.
<b>pH:</b>	No information available.
<b>Melting Point/Range:</b>	-76 °C.
<b>Boiling Point/Range:</b>	145 °C.
<b>Flash Point:</b>	35 °C / 95 °F.
<b>Evaporation Rate:</b>	No information available.
<b>Flammability (solid,gas):</b>	Not applicable.
<b>Flammability or explosive limits:</b>	
Upper	No information available.
Lower	No information available.
<b>Vapor Pressure:</b>	10 hPa @ 40 °C.
<b>Density:</b>	0.892 g/cm <sup>3</sup> .
<b>Solubility:</b>	Soluble in water.
<b>Partition coefficient; n-octanol/water:</b>	No data available.
<b>Autoignition Temperature:</b>	No data available.
<b>Decomposition Temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.
<b>Molecular formula:</b>	C <sub>7</sub> H <sub>16</sub> O <sub>3</sub> .
<b>Molecular Weight:</b>	148.2 g/mol.

### Section 10- Stability and Reactivity.

**Reactive Hazard:** None known, based on information available.

**Stability:** Moisture sensitive.

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

**Incompatible Materials:** Strong oxidizing agents.

**Hazardous Decomposition Products:** Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

**Hazardous Polymerization:** Hazardous polymerization does not occur.

**Hazardous Reactions:** None under normal processing.

### Section 11- Toxicological Information.

#### Acute Toxicity

#### Product Information





### Component Information

Component	LD50 Oral	LD50 Dermal	LC50
Inhalation			
Ethyl orthoformate	LD50 = 7060 mg/kg (Rat)	LD50 = 18000 mg/kg (Rabbit)	LC50 = 24750 mg/m <sup>3</sup> (Rat) 8h

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

**Irritation:** No information available.

**Sensitization:** No information available.

**Mutagenic Effects:** Not mutagenic in AMES Test.

**Reproductive Effects:** No information available.

**Teratogenicity:** No information available.

STOT - single exposure Respiratory system.

STOT - repeated exposure None known

**Aspiration hazard:** No information available.

**Symptoms/effects, both acute and delayed:** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

**Endocrine Disruptor Information:** No information available.

**Other Adverse Effects:** The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

### Section 12- Ecological Information.

**Ecotoxicity:** Do not empty into drains.

**Persistence and Degradability:** Soluble in water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation:** No information available.

**Mobility:** Will likely be mobile in the environment due to its water solubility.

### Section 13- Disposal Considerations.

**Waste Disposal Methods:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

### Section 14- Transport Information.

#### DOT:

UN-No:	UN2524
Proper Shipping Name:	ETHYL ORTHOFORMATE
Hazard Class:	3
Packing Group:	III





**TDG:**

UN-No: UN2524  
Proper Shipping Name: ETHYL ORTHOFORMATE  
Hazard Class: 3  
Packing Group: III

**IATA:**

UN-No: UN2524  
Proper Shipping Name: ETHYL ORTHOFORMATE  
Hazard Class: 3  
Packing Group: III

**IMDG/IMO:**

UN-No: UN2524  
Proper Shipping Name: ETHYL ORTHOFORMATE  
Hazard Class: 3  
Packing Group: III

**Section 15- Regulatory Information.**

**Legend:**

TSCA - Toxic Substances Control Act, (40 CFR Part 710).

X - Listed

'-' - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable.

**U.S. Federal Regulations**

SARA 313: Not applicable.

SARA 311/312 Hazard Categories See section 2 for more information.

CWA (Clean Water Act): Not applicable.

**Clean Air Act:** Not applicable.

**OSHA** - Occupational Safety and Health Administration: Not applicable.

**CERCLA:** Not applicable

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

**Section 16- Other Information.**

Briti Scientific provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

