

SAFETY DATA SHEET

Creation Date 02-Jun-2009

Revision Date 25-Mar-2024

Revision Number 3

1. Identification

Product Name Zirconium(IV) n-propoxide, 70% w/w in n-propanol

Cat No. : 44770

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11

Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99

CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|------------|
| Flammable liquids | Category 3 |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Target Organs - Respiratory system, Central nervous system (CNS). | |

Label Elements

Signal Word

Danger

Hazard Statements

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

**Precautionary Statements****Prevention**

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

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

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Immediately call a POISON CENTER or doctor/physician

Fire

In case of fire: Use CO₂, 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 waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

3. Composition/Information on Ingredients

| Component | CAS No | Weight % |
|--------------------------------|------------|----------|
| 1-Propanol, zirconium(4+) salt | 23519-77-9 | 70 |
| n-Propyl alcohol | 71-23-8 | 30 |

4. First-aid measures

| | |
|------------------------------------|---|
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. Get medical attention. |
| Inhalation | Remove to fresh air. Get medical attention. If not breathing, give artificial respiration. |
| Ingestion | Do NOT induce vomiting. Get medical attention. |
| Most important symptoms and | Difficulty in breathing. Causes eye burns. Causes severe eye damage. Symptoms of |

effects overexposure may be headache, dizziness, tiredness, nausea and vomiting
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media No information available

Flash Point 23 °C / 73 °F

Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge 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 Products

Carbon monoxide (CO). Carbon dioxide (CO₂).

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. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health
2

Flammability
2

Instability
1

Physical hazards
N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.

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.

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. Flammables area. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines

| Component | ACGIH TLV | OSHA PEL | NIOSH | Mexico OEL (TWA) |
|--------------------------------|--|--|---|--|
| 1-Propanol, zirconium(4+) salt | TWA: 5 mg/m ³ STEL: 10 mg/m ³ | (Vacated) TWA: 5 mg/m ³ (Vacated) STEL: 10 mg/m ³ | IDLH: 25 mg/m ³ TWA: 5 mg/m ³ STEL: 10 mg/m ³ | TWA: 5 mg/m ³ STEL: 10 mg/m ³ |
| n-Propyl alcohol | TWA: 100 ppm | (Vacated) TWA: 200 ppm (Vacated) TWA: 500 mg/m ³ (Vacated) STEL: 250 ppm (Vacated) STEL: 625 mg/m ³ TWA: 200 ppm TWA: 500 mg/m ³ | IDLH: 800 ppm TWA: 200 ppm TWA: 500 mg/m ³ STEL: 250 ppm STEL: 625 mg/m ³ | TWA: 100 ppm |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation 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.

Recommended Filter type:

low boiling organic solvent. Type AX. Brown. conforming to EN371. or. Organic gases and vapours filter. Type A. Brown. conforming to EN14387.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

| | |
|--|--------------------------|
| Physical State | Liquid |
| Appearance | No information available |
| Odor | No information available |
| Odor Threshold | No information available |
| pH | No information available |
| Melting Point/Range | No data available |
| Boiling Point/Range | No information available |
| Flash Point | 23 °C / 73 °F |
| Evaporation Rate | No information available |
| Flammability (solid,gas) | Not applicable |
| Flammability or explosive limits | |
| Upper | No data available |
| Lower | No data available |
| Vapor Pressure | No information available |
| Vapor Density | No information available |
| Specific Gravity | 1.044 |
| Solubility | No information available |
| Partition coefficient; n-octanol/water | No data available |
| Autoignition Temperature | No information available |
| Decomposition Temperature | No information available |
| Viscosity | No information available |

Molecular Formula
Molecular Weight

C₁₂ H₂₈ O₄ Zr
327.57

10. Stability and reactivity

| | |
|---|---|
| Reactive Hazard | None known, based on information available |
| Stability | Moisture sensitive. |
| Conditions to Avoid | Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to moist air or water. |
| Incompatible Materials | Strong oxidizing agents |
| Hazardous Decomposition Products | Carbon monoxide (CO), Carbon dioxide (CO ₂) |
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. |

11. Toxicological information

Acute Toxicity

| | |
|----------------------------|---|
| Product Information | No acute toxicity information is available for this product |
| Oral LD50 | Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg. |
| Dermal LD50 | Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg. |
| Vapor LC50 | Based on ATE data, the classification criteria are not met. ATE > 20 mg/l. |

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|--------------------------------|---------------------------|------------------------------|------------------------------|
| 1-Propanol, zirconium(4+) salt | Not listed | LD50 = 4032 mg/kg (Rabbit) | Not listed |
| n-Propyl alcohol | LD50 = 1870 mg/kg (Rat) | LD50 = 4049 mg/kg (Rabbit) | LC50 > 33.8 mg/L (Rat) 4 h |

| | |
|---|--------------------------|
| Toxicologically Synergistic Products | No information available |
|---|--------------------------|

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

| | |
|------------------------|--|
| Irritation | Severe eye irritant Irritating to respiratory system and skin |
| Sensitization | No information available |
| Carcinogenicity | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component | CAS No | IARC | NTP | ACGIH | OSHA | Mexico |
|--------------------------------|------------|------------|------------|------------|------------|------------|
| 1-Propanol, zirconium(4+) salt | 23519-77-9 | Not listed | Not listed | Not listed | Not listed | Not listed |
| n-Propyl alcohol | 71-23-8 | Not listed | Not listed | Not listed | Not listed | Not listed |

| | |
|--------------------------|--------------------------|
| Mutagenic Effects | No information available |
|--------------------------|--------------------------|

| | |
|-----------------------------|---------------------------|
| Reproductive Effects | No information available. |
|-----------------------------|---------------------------|

| | |
|------------------------------|---------------------------|
| Developmental Effects | No information available. |
|------------------------------|---------------------------|

| | |
|-----------------------|---------------------------|
| Teratogenicity | No information available. |
|-----------------------|---------------------------|

| | |
|---------------------------------|---|
| STOT - single exposure | Respiratory system Central nervous system (CNS) |
| 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.

12. Ecological information

Ecotoxicity

Do not empty into drains. .

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|------------------|------------------|--|---|--|
| n-Propyl alcohol | Not listed | Pimephales promelas: LC50=4480 mg/L 96h | EC50 = 17700 mg/L 5 min EC50 = 45000 mg/L 5 h EC50 = 8686 mg/L 15 min EC50 = 980 mg/L 12 h | EC50: 3339 - 3977 mg/L, 48h Static (Daphnia magna) EC50: = 3642 mg/L, 48h (Daphnia magna) |

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility .

| Component | log Pow |
|--------------------------------|---------|
| 1-Propanol, zirconium(4+) salt | 0.34 |
| n-Propyl alcohol | 0.2 |

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.

14. Transport information

DOT

UN-No UN1993
 Proper Shipping Name Flammable liquid, n.o.s.
 Technical Name n-Propyl alcohol
 Hazard Class 3
 Packing Group III

TDG

UN-No UN1993
 Proper Shipping Name Flammable liquid, n.o.s.
 Hazard Class 3
 Packing Group III

IATA

UN-No UN1993
 Proper Shipping Name Flammable liquid, n.o.s.
 Hazard Class 3
 Packing Group III

IMDG/IMO

UN-No UN1993
 Proper Shipping Name Flammable liquid, n.o.s.
 Hazard Class 3
 Packing Group III

15. Regulatory information

United States of America Inventory

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|--------------------------------|------------|------|---|-----------------------------|
| 1-Propanol, zirconium(4+) salt | 23519-77-9 | X | ACTIVE | - |
| n-Propyl alcohol | 71-23-8 | X | ACTIVE | - |

Legend:

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

X - Listed

'- - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)

Not applicable

TSCA 12(b) - Notices of Export

Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDSL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|--------------------------------|------------|-----|------|-----------|-------|------|------|------|-------|----------|
| 1-Propanol, zirconium(4+) salt | 23519-77-9 | - | X | 245-711-9 | X | X | X | X | X | KE-35649 |
| n-Propyl alcohol | 71-23-8 | X | - | 200-746-9 | X | X | X | X | X | KE-29362 |

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)**U.S. 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.

CWA (Clean Water Act)

Not applicable

Clean Air Act

Not applicable

OSHA - Occupational Safety and Health Administration

Not applicable

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.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|--------------------------------|---------------|------------|--------------|----------|--------------|
| 1-Propanol, zirconium(4+) salt | - | - | - | - | X |
| n-Propyl alcohol | X | X | X | - | X |

U.S. Department of Transportation

Reportable Quantity (RQ): N
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations**Mexico - Grade**

Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|--------------------------------|------------|---|---|---|
| 1-Propanol, zirconium(4+) salt | 23519-77-9 | - | Use restricted. See item 75. (see link for restriction details) | - |
| n-Propyl alcohol | 71-23-8 | - | Use restricted. See item 75. (see link for restriction details) | - |

REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

Safety, health and environmental regulations/legislation specific for the substance or mixture

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|--------------------------------|------------|----------------|------------------------------|---------------------------|--|
| 1-Propanol, zirconium(4+) salt | 23519-77-9 | Not applicable | Not applicable | Not applicable | Not applicable |
| n-Propyl alcohol | 71-23-8 | Listed | Not applicable | Not applicable | Not applicable |

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|--------------------------------|------------|---|--|----------------------------|------------------------------------|
| 1-Propanol, zirconium(4+) salt | 23519-77-9 | Not applicable | Not applicable | Not applicable | Not applicable |
| n-Propyl alcohol | 71-23-8 | Not applicable | Not applicable | Not applicable | Not applicable |

16. Other information**Prepared By**

Health, Safety and Environmental Department
 Email: chem.techinfo@thermofisher.com
 www.thermofisher.com

| | |
|-------------------------|--|
| Creation Date | 02-Jun-2009 |
| Revision Date | 25-Mar-2024 |
| Print Date | 25-Mar-2024 |
| Revision Summary | New emergency telephone response service provider. |

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS