

Creation Date 02-Jun-2009

Revision Date 30-Nov-2024

Revision Number 4

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: Zirconium(IV) n-propoxide, 70% w/w in n-propanol
Cat No. : **22989**
Molecular Formula C₁₂ H₂₈ O₄ Zr

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals.
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company

Thermo Fisher (Kandel) GmbH
Erlenbachweg 2, 76870 Kandel, Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300

Swiss distributor - Fisher Scientific AG
Neuhofstrasse 11, CH 4153 Reinach
Tel: +41 (0) 56 618 41 11
<https://www.fishersci.ch/ch/en/customer-help-support/forms/email-us.html>

E-mail address begel.sdsdesk@thermofisher.com

1.4. 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

customers in Switzerland:
Tox Info Suisse Emergency Number: **145 (24hr)**
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)
Chemtrec (24h) Toll-Free: 0800 564 402
Chemtrec Local: +41-43 508 20 11 (Zurich)

Poison Centre - Emergency information services

Ireland : National Poisons Information Centre (NPIC) -
01 809 2166 (8am-10pm, 7 days a week)
Malta : +356 2395 2000
Cyprus : +357 2240 5611

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

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CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids

Category 3 (H226)

Health hazards

Serious Eye Damage/Eye Irritation
Specific target organ toxicity - (single exposure)

Category 1 (H318)
Category 3 (H336)

Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H226 - Flammable liquid and vapor
H336 - May cause drowsiness or dizziness
H318 - Causes serious eye damage

Precautionary Statements

P280 - Wear eye protection/ face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

2.3. Other hazards

Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

Section 3: Composition/information on ingredients

3.2. Mixtures

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Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
1-Propanol, zirconium(4+) salt	23519-77-9	EEC No. 245-711-9	70	-
n-Propanol	71-23-8	EEC No. 200-746-9	30	Flam. Liq. 2 (H225) Eye Dam. 1 (H318) STOT SE 3 (H336)

Full text of Hazard Statements: see section 16

Section 4: First aid measures

4.1. Description of 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.
Ingestion	Do NOT induce vomiting. Get medical attention.
Inhalation	Remove to fresh air. Get medical attention. If not breathing, give artificial respiration.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

4.2. Most important symptoms and effects, both acute and delayed

Difficulty in breathing. Causes eye burns. Causes severe eye damage. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically. Symptoms may be delayed.
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Section 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

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

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

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).

5.3. Advice for firefighters

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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.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning 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.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

Section 7: Handling and storage

7.1. Precautions for safe 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.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame.

Technical Rules for Hazardous Substances (TRGS) 510
Storage Class (LGK) (Germany)

Class 3

Switzerland - Storage of hazardous substances

<https://www.kvu.ch/de/themen/stoffe-und-produkte>
<https://www.kvu.ch/fr/themes/substances-et-produits>
<https://www.kvu.ch/it/temi/sostanze-e-prodotti> Storage class - SC
3

7.3. Specific end use(s)

Use in laboratories

Section 8: Exposure controls/personal protection

8.1. Control parameters

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Exposure limits

List source(s): **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

Component	European Union	The United Kingdom	France	Belgium	Spain
1-Propanol, zirconium(4+) salt		STEL: 10 mg/m ³ 15 min TWA: 5 mg/m ³ 8 hr			STEL / VLA-EC: 10 mg/m ³ (15 minutos). TWA / VLA-ED: 5 mg/m ³ (8 horas)
n-Propanol		STEL: 250 ppm 15 min STEL: 625 mg/m ³ 15 min TWA: 200 ppm 8 hr TWA: 500 mg/m ³ 8 hr Skin	TWA / VME: 200 ppm (8 heures). TWA / VME: 500 mg/m ³ (8 heures).	TWA: 100 ppm 8 uren TWA: 250 mg/m ³ 8 uren	STEL / VLA-EC: 400 ppm (15 minutos). STEL / VLA-EC: 1000 mg/m ³ (15 minutos). TWA / VLA-ED: 200 ppm (8 horas) TWA / VLA-ED: 500 mg/m ³ (8 horas) Piel

Component	Italy	Germany	Portugal	The Netherlands	Finland
1-Propanol, zirconium(4+) salt			STEL: 10 mg/m ³ 15 minutos TWA: 5 mg/m ³ 8 horas		
n-Propanol			STEL: 400 ppm 15 minutos TWA: 200 ppm 8 horas		TWA: 200 ppm 8 tunteina TWA: 500 mg/m ³ 8 tunteina STEL: 250 ppm 15 minuutteina STEL: 620 mg/m ³ 15 minuutteina

Component	Austria	Denmark	Switzerland	Poland	Norway
1-Propanol, zirconium(4+) salt	MAK-TMW: 5 mg/m ³ 8 Stunden		TWA: 5 mg/m ³ 8 Stunden		TWA: 5 mg/m ³ 8 timer
n-Propanol	MAK-TMW: 200 ppm 8 Stunden MAK-TMW: 500 mg/m ³ 8 Stunden	TWA: 200 ppm 8 timer TWA: 500 mg/m ³ 8 timer STEL: 400 ppm 15 minutter STEL: 1000 mg/m ³ 15 minutter Hud	Haut/Peau TWA: 200 ppm 8 Stunden TWA: 500 mg/m ³ 8 Stunden	STEL: 600 mg/m ³ 15 minutach TWA: 200 mg/m ³ 8 godzinach	TWA: 100 ppm 8 timer TWA: 245 mg/m ³ 8 timer STEL: 150 ppm 15 minutter. value calculated STEL: 306.25 mg/m ³ 15 minutter. value calculated Hud

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
n-Propanol	TWA: 300.0 mg/m ³ STEL : 500.0 mg/m ³	TWA-GVI: 200 ppm 8 satima. TWA-GVI: 500 mg/m ³ 8 satima. STEL-KGVI: 250 ppm 15 minutama. STEL-KGVI: 625 mg/m ³ 15 minutama.	TWA: 100 ppm 8 hr. STEL: 300 ppm 15 min Skin		TWA: 500 mg/m ³ 8 hodinách. Potential for cutaneous absorption Ceiling: 1000 mg/m ³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
n-Propanol			STEL: 250 ppm STEL: 625 mg/m ³ TWA: 200 ppm TWA: 500 mg/m ³		TWA: 200 ppm 8 klukkustundum. TWA: 500 mg/m ³ 8 klukkustundum. Skin notation Ceiling: 400 ppm Ceiling: 1000 mg/m ³

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Component	Latvia	Lithuania	Luxembourg	Malta	Romania
n-Propanol	TWA: 10 mg/m ³				TWA: 81 ppm 8 ore TWA: 200 mg/m ³ 8 ore STEL: 203 ppm 15 minute STEL: 500 mg/m ³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
n-Propanol	TWA: 10 mg/m ³ 1762 MAC: 30 mg/m ³			Indicative STEL: 250 ppm 15 minuter Indicative STEL: 600 mg/m ³ 15 minuter TLV: 150 ppm 8 timmar. NGV TLV: 350 mg/m ³ 8 timmar. NGV	

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography

MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
n-Propanol 71-23-8 (30)				DNEL = 136mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
1-Propanol, zirconium(4+) salt 23519-77-9 (70)				DNEL = 103mg/m ³
n-Propanol 71-23-8 (30)		DNEL = 1723mg/m ³		DNEL = 268mg/m ³

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
1-Propanol, zirconium(4+) salt 23519-77-9 (70)	PNEC = 1.15mg/L	PNEC = 1.007mg/kg sediment dw	PNEC = 11.5mg/L	PNEC = 96mg/L	
n-Propanol 71-23-8 (30)	PNEC = 6.83mg/L	PNEC = 27.5mg/kg sediment dw	PNEC = 10mg/L	PNEC = 96mg/L	PNEC = 1.49mg/kg soil dw

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Component	Marine water	Marine water sediment	Marine water Intermittent	Food chain	Air
1-Propanol, zirconium(4+) salt 23519-77-9 (70)	PNEC = 0.115mg/L	PNEC = 0.1mg/kg sediment dw			
n-Propanol 71-23-8 (30)	PNEC = 0.683mg/L	PNEC = 2.75mg/kg sediment dw			

8.2. Exposure controls

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.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection

Goggles (European standard - EN 166)

Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber	See manufacturers recommendations	-	EN 374	(minimum requirement)
Viton (R)				

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 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

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

No information available.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State

Liquid

Appearance

Odor

No information available

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Odor Threshold	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flammability (liquid)	Flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Flash Point	23 °C / 73 °F	Method - No information available
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	No information available	
Viscosity	No data available	
Water Solubility	No information available	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
1-Propanol, zirconium(4+) salt	0.34	
n-Propanol	0.2	
Vapor Pressure	No data available	
Density / Specific Gravity	1.044	
Bulk Density	Not applicable	Liquid
Vapor Density	No data available	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	C12 H28 O4 Zr
Molecular Weight	327.57
Explosive Properties	explosive air/vapour mixtures possible

Section 10: Stability and reactivity

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Moisture sensitive.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to moist air or water.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

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

Section 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

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Product Information

No acute toxicity information is available for this product

(a) acute toxicity;

Oral

Based on available data, the classification criteria are not met

Dermal

Based on available data, the classification criteria are not met

Inhalation

Based on available data, the classification criteria are not met

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1-Propanol, zirconium(4+) salt	-	LD50 = 4032 mg/kg (Rabbit)	-
n-Propanol	LD50 = 1870 mg/kg (Rat)	LD50 = 4049 mg/kg (Rabbit)	LC50 > 33.8 mg/L (Rat) 4 h

(b) skin corrosion/irritation;

No data available

(c) serious eye damage/irritation;

Category 1

(d) respiratory or skin sensitization;

Respiratory

No data available

Skin

No data available

(e) germ cell mutagenicity;

No data available

(f) carcinogenicity;

No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;

No data available

(h) STOT-single exposure;

Category 3

Results / Target organs

Central nervous system (CNS).

(i) STOT-repeated exposure;

No data available

Target Organs

No information available.

(j) aspiration hazard;

No data available

Other Adverse Effects

The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

11.2. Information on other hazards

Endocrine Disrupting Properties

Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

Section 12: Ecological information

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12.1. Toxicity

Ecotoxicity effects

Do not empty into drains. .

Component	Freshwater Fish	Water Flea	Freshwater Algae
n-Propanol	Pimephales promelas: LC50=4480 mg/L 96h	EC50: 3339 - 3977 mg/L, 48h Static (Daphnia magna) EC50: = 3642 mg/L, 48h (Daphnia magna)	

Component	Microtox	M-Factor
n-Propanol	EC50 = 17700 mg/L 5 min EC50 = 45000 mg/L 5 h EC50 = 8686 mg/L 15 min EC50 = 980 mg/L 12 h	

12.2. Persistence and degradability No information available

12.3. Bioaccumulative potential No information available

Component	log Pow	Bioconcentration factor (BCF)
1-Propanol, zirconium(4+) salt	0.34	No data available
n-Propanol	0.2	No data available

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment No data available for assessment.

12.6. Endocrine disrupting properties

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Ozone Depletion Potential

This product does not contain any known or suspected substance

Section 13: Disposal considerations

13.1. Waste treatment methods

Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC)

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains.

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Switzerland - Waste Ordinance

Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600
<https://www.fedlex.admin.ch/eli/cc/2015/891/en>

Section 14: Transport information

IMDG/IMO

14.1. UN number UN1993
14.2. UN proper shipping name Flammable liquid, n.o.s.
Technical Shipping Name n-Propyl alcohol
14.3. Transport hazard class(es) 3
14.4. Packing group III

ADR

14.1. UN number UN1993
14.2. UN proper shipping name Flammable liquid, n.o.s.
Technical Shipping Name n-Propyl alcohol
14.3. Transport hazard class(es) 3
14.4. Packing group III

IATA

14.1. UN number UN1993
14.2. UN proper shipping name Flammable liquid, n.o.s.
Technical Shipping Name n-Propyl alcohol
14.3. Transport hazard class(es) 3
14.4. Packing group III

14.5. Environmental hazards No hazards identified
14.6. Special precautions for user No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

Section 15: Regulatory information

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
1-Propanol, zirconium(4+) salt	23519-77-9	245-711-9	-	-	X	X	KE-35649	X	X
n-Propanol	71-23-8	200-746-9	-	-	X	X	KE-29362	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
1-Propanol, zirconium(4+) salt	23519-77-9	X	ACTIVE	-	X	X	X	X
n-Propanol	71-23-8	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed

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

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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 entry 75. (see link for restriction details)	-
n-Propanol	71-23-8	-	Use restricted. See entry 75. (see link for restriction details)	-

REACH links

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

Seveso III Directive (2012/18/EC)

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
1-Propanol, zirconium(4+) salt	23519-77-9	Not applicable	Not applicable
n-Propanol	71-23-8	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

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

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

Water endangering class = 1 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
n-Propanol	WGK1	

Component	France - INRS (Tables of occupational diseases)
n-Propanol	Tableaux des maladies professionnelles (TMP) - RG 84

Swiss Regulations

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent

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	substances preparation (SR 814.81)		Procedure
n-Propanol 71-23-8 (30)		Group I	

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

Section 16: Other information

Full text of H-Statements referred to under sections 2 and 3

H225 - Highly flammable liquid and vapor
H318 - Causes serious eye damage
H336 - May cause drowsiness or dizziness

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (volatile organic compound)

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards On basis of test data

Health Hazards Calculation method

Environmental hazards Calculation method

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

Chemical incident response training.

Prepared By Health, Safety and Environmental Department

Creation Date 02-Jun-2009

Revision Date 30-Nov-2024

Revision Summary Not applicable.

SAFETY DATA SHEET

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

Revision Date 30-Nov-2024

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No
1907/2006 .**

**For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2,
Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and
Preparations).**

Disclaimer

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End of Safety Data Sheet