

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

1.1. Product identifier

Product Description: Zinc oxide, NanoArc™ZN-0625, 50% in 1,2-propanediol monomeethyl ether acetate, colloidal dispersion
Cat No. : 44924
Molecular Formula ZN O

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
 Neuhoferstrasse 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

Based on available data, the classification criteria are not met

Environmental hazards

Acute aquatic toxicity
Chronic aquatic toxicity

Category 1 (H400)
Category 1 (H410)

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Warning

Hazard Statements

H226 - Flammable liquid and vapor

H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements

P273 - Avoid release to the environment

P391 - Collect spillage

P501 - Dispose of contents/ container to an approved waste disposal plant

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

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

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
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Zinc oxide (ZnO)	1314-13-2	215-222-5	50.00	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
Propylene glycol monomethyl ether acetate	108-65-6	EEC No. 203-603-9	50.00	Flam. Liq. 3 (H226)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Zinc oxide (ZnO)	-	10	-

Full text of Hazard Statements: see section 16

Section 4: First aid measures

4.1. Description of first aid measures

General Advice	If symptoms persist, call a physician.
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. If skin irritation persists, call a physician.
Ingestion	Clean mouth with water and drink afterwards plenty of water.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
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. 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

Carbon dioxide (CO₂). Powder. Water spray. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. 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. Do not allow run-off from fire-fighting to enter drains or water courses.

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Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Zinc oxide.

5.3. Advice 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

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

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. Ensure adequate ventilation. 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. 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 container tightly closed in a dry and well-ventilated place. 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

Storage class - SC 3
<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>

7.3. Specific end use(s)

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Use in laboratories

Section 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **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
Zinc oxide (ZnO)			TWA / VME: 5 mg/m ³ (8 heures). TWA / VME: 10 mg/m ³ (8 heures).	TWA: 2 mg/m ³ 8 uren STEL: 10 mg/m ³ 15 minuten	STEL / VLA-EC: 10 mg/m ³ (15 minutos). TWA / VLA-ED: 2 mg/m ³ (8 horas)
Propylene glycol monomethyl ether acetate	TWA: 50 ppm (8h) TWA: 275 mg/m ³ (8h) STEL: 100 ppm (15min) STEL: 550 mg/m ³ (15min) Skin	STEL: 100 ppm 15 min STEL: 548 mg/m ³ 15 min TWA: 50 ppm 8 hr TWA: 274 mg/m ³ 8 hr Skin	TWA / VME: 50 ppm (8 heures). restrictive limit TWA / VME: 275 mg/m ³ (8 heures). restrictive limit STEL / VLCT: 100 ppm. restrictive limit STEL / VLCT: 550 mg/m ³ . restrictive limit Peau	TWA: 50 ppm 8 uren TWA: 275 mg/m ³ 8 uren STEL: 100 ppm 15 minuten STEL: 550 mg/m ³ 15 minuten Huid	STEL / VLA-EC: 100 ppm (15 minutos). STEL / VLA-EC: 550 mg/m ³ (15 minutos). TWA / VLA-ED: 50 ppm (8 horas) TWA / VLA-ED: 275 mg/m ³ (8 horas) Piel

Component	Italy	Germany	Portugal	The Netherlands	Finland
Zinc oxide (ZnO)		TWA: 0.1 mg/m ³ (8 Stunden). MAK TWA: 2 mg/m ³ (8 Stunden). MAK Höhepunkt: 0.4 mg/m ³ Höhepunkt: 4 mg/m ³	STEL: 10 mg/m ³ 15 minutos TWA: 2 mg/m ³ 8 horas		TWA: 2 mg/m ³ 8 tunteina STEL: 10 mg/m ³ 15 minuutteina
Propylene glycol monomethyl ether acetate	TWA: 50 ppm 8 ore. Time Weighted Average TWA: 275 mg/m ³ 8 ore. Time Weighted Average STEL: 100 ppm 15 minuti. Short-term STEL: 550 mg/m ³ 15 minuti. Short-term Pelle	TWA: 50 ppm (8 Stunden). AGW - exposure factor 1 TWA: 270 mg/m ³ (8 Stunden). AGW - exposure factor 1 TWA: 50 ppm (8 Stunden). MAK TWA: 270 mg/m ³ (8 Stunden). MAK Höhepunkt: 50 ppm Höhepunkt: 270 mg/m ³	STEL: 100 ppm 15 minutos STEL: 550 mg/m ³ 15 minutos TWA: 50 ppm 8 horas TWA: 275 mg/m ³ 8 horas Pele	TWA: 100 ppm 8 uren TWA: 550 mg/m ³ 8 uren	TWA: 50 ppm 8 tunteina TWA: 270 mg/m ³ 8 tunteina STEL: 100 ppm 15 minuutteina STEL: 550 mg/m ³ 15 minuutteina Iho

Component	Austria	Denmark	Switzerland	Poland	Norway
Zinc oxide (ZnO)	MAK-TMW: 5 mg/m ³ 8 Stunden	TWA: 4 mg/m ³ 8 timer STEL: 8 mg/m ³ 15 minutter	STEL: 3 mg/m ³ 15 Minuten TWA: 3 mg/m ³ 8 Stunden	STEL: 10 mg/m ³ 15 minutach TWA: 5 mg/m ³ 8 godzinach	TWA: 5 mg/m ³ 8 timer STEL: 10 mg/m ³ 15 minutter. value calculated
Propylene glycol monomethyl ether acetate	Haut MAK-KZGW: 100 ppm 15 Minuten MAK-KZGW: 550 mg/m ³ 15 Minuten MAK-TMW: 50 ppm 8 Stunden MAK-TMW: 275 mg/m ³ 8 Stunden	TWA: 50 ppm 8 timer TWA: 275 mg/m ³ 8 timer STEL: 550 mg/m ³ 15 minutter STEL: 100 ppm 15 minutter Hud	STEL: 50 ppm 15 Minuten STEL: 275 mg/m ³ 15 Minuten TWA: 50 ppm 8 Stunden TWA: 275 mg/m ³ 8 Stunden	STEL: 520 mg/m ³ 15 minutach TWA: 260 mg/m ³ 8 godzinach	TWA: 50 ppm 8 timer TWA: 270 mg/m ³ 8 timer STEL: 75 ppm 15 minutter. value calculated STEL: 337.5 mg/m ³ 15 minutter. value calculated Hud

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Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Zinc oxide (ZnO)	TWA: 5.0 mg/m ³ STEL : 10.0 mg/m ³	TWA-GVI: 2 mg/m ³ 8 satima. respirable dust STEL-KGVI: 10 mg/m ³ 15 minutama.	TWA: 2 mg/m ³ 8 hr. fume; respirable fraction STEL: 10 mg/m ³ 15 min		TWA: 2 mg/m ³ 8 hodinách. Zn Ceiling: 5 mg/m ³ Zn
Propylene glycol monomethyl ether acetate	TWA: 50 ppm TWA: 275.0 mg/m ³ STEL : 100 ppm STEL : 550.0 mg/m ³ Skin notation	kože TWA-GVI: 50 ppm 8 satima. TWA-GVI: 275 mg/m ³ 8 satima. STEL-KGVI: 100 ppm 15 minutama. STEL-KGVI: 550 mg/m ³ 15 minutama.	TWA: 50 ppm 8 hr. TWA: 275 mg/m ³ 8 hr. STEL: 100 ppm 15 min STEL: 550 mg/m ³ 15 min Skin	Skin-potential for cutaneous absorption STEL: 100 ppm STEL: 550 mg/m ³ TWA: 50 ppm TWA: 275 mg/m ³	TWA: 270 mg/m ³ 8 hodinách. Potential for cutaneous absorption Ceiling: 550 mg/m ³ toxic for reproduction

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Zinc oxide (ZnO)	TWA: 5 mg/m ³ 8 tundides.		STEL: 10 mg/m ³ TWA: 5 mg/m ³	TWA: 5 mg/m ³ 8 órában. AK	TWA: 4 mg/m ³ 8 klukkustundum. Zn including fume Ceiling: 8 mg/m ³ Zn including fume
Propylene glycol monomethyl ether acetate	Nahk TWA: 50 ppm 8 tundides. TWA: 275 mg/m ³ 8 tundides. STEL: 100 ppm 15 minutites. STEL: 550 mg/m ³ 15 minutites.	Skin notation TWA: 50 ppm 8 hr TWA: 275 mg/m ³ 8 hr STEL: 100 ppm 15 min STEL: 550 mg/m ³ 15 min	skin - potential for cutaneous absorption STEL: 100 ppm STEL: 550 mg/m ³ TWA: 50 ppm TWA: 275 mg/m ³	STEL: 550 mg/m ³ 15 percekben. CK STEL: 100 ppm 15 percekben. CK TWA: 275 mg/m ³ 8 órában. AK TWA: 50 ppm 8 órában. AK	STEL: 100 ppm STEL: 550 mg/m ³ TWA: 50 ppm 8 klukkustundum. TWA: 275 mg/m ³ 8 klukkustundum. Skin notation

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Zinc oxide (ZnO)	TWA: 0.5 mg/m ³	TWA: 5 mg/m ³ IPRD			TWA: 5 mg/m ³ 8 ore STEL: 10 mg/m ³ 15 minute
Propylene glycol monomethyl ether acetate	skin - potential for cutaneous exposure STEL: 100 ppm STEL: 550 mg/m ³ TWA: 50 ppm TWA: 275 mg/m ³	TWA: 50 ppm IPRD TWA: 250 mg/m ³ IPRD Oda STEL: 75 ppm STEL: 400 mg/m ³	Possibility of significant uptake through the skin TWA: 50 ppm 8 Stunden TWA: 275 mg/m ³ 8 Stunden STEL: 100 ppm 15 Minuten STEL: 550 mg/m ³ 15 Minuten	possibility of significant uptake through the skin TWA: 50 ppm TWA: 275 mg/m ³ STEL: 100 ppm 15 minuti STEL: 550 mg/m ³ 15 minuti	Skin notation TWA: 50 ppm 8 ore TWA: 275 mg/m ³ 8 ore STEL: 100 ppm 15 minute STEL: 550 mg/m ³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Zinc oxide (ZnO)	TWA: 0.5 mg/m ³ 2345 MAC: 1.5 mg/m ³	Ceiling: 1 mg/m ³ TWA: 1 mg/m ³ fume		TLV: 5 mg/m ³ 8 timmar. NGV	
Propylene glycol monomethyl ether acetate	MAC: 10 mg/m ³	Ceiling: 550 mg/m ³ Potential for cutaneous absorption TWA: 50 ppm TWA: 275 mg/m ³	TWA: 50 ppm 8 urah TWA: 275 mg/m ³ 8 urah Koža STEL: 100 ppm 15 minutah STEL: 550 mg/m ³ 15 minutah	Binding STEL: 100 ppm 15 minuter Binding STEL: 550 mg/m ³ 15 minuter TLV: 50 ppm 8 timmar. NGV TLV: 275 mg/m ³ 8 timmar. NGV Hud	Deri TWA: 50 ppm 8 saat TWA: 275 mg/m ³ 8 saat STEL: 100 ppm 15 dakika STEL: 550 mg/m ³ 15 dakika

Biological limit values

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

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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

MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry

MDHS 99 Metals in air by ICP-AES

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)
Zinc oxide (ZnO) 1314-13-2 (50.00)				DNEL = 83mg/kg bw/day
Propylene glycol monomethyl ether acetate 108-65-6 (50.00)				DNEL = 796mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Zinc oxide (ZnO) 1314-13-2 (50.00)			DNEL = 0.5mg/m ³	DNEL = 5mg/m ³
Propylene glycol monomethyl ether acetate 108-65-6 (50.00)	DNEL = 550mg/m ³			DNEL = 275mg/m ³

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Zinc oxide (ZnO) 1314-13-2 (50.00)	PNEC = 20.6µg/L	PNEC = 117.8mg/kg sediment dw		PNEC = 100µg/L	PNEC = 35.6mg/kg soil dw
Propylene glycol monomethyl ether acetate 108-65-6 (50.00)	PNEC = 0.635mg/L	PNEC = 3.29mg/kg sediment dw	PNEC = 6.35mg/L	PNEC = 100mg/L	PNEC = 0.29mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water Intermittent	Food chain	Air
Zinc oxide (ZnO) 1314-13-2 (50.00)	PNEC = 6.1µg/L	PNEC = 56.5mg/kg sediment dw			
Propylene glycol monomethyl ether acetate 108-65-6 (50.00)	PNEC = 0.0635mg/L	PNEC = 0.329mg/kg sediment dw			

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment.

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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 Wear safety glasses with side shields (or goggles) (European standard - EN 166)

Hand Protection Protective gloves

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

Skin and body protection Long sleeved clothing.

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: Multi-purpose/ABEK conforming to EN14387 low boiling organic solvent Type AX Brown conforming to EN371 or Organic gases and vapours filter Type A Brown

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 Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State	Liquid dispersion	
Appearance		
Odor	No information available	
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	Estimated
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Flash Point	No information available	Method - No information available
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	No information available	
Viscosity	No data available	

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Water Solubility	Immiscible	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Propylene glycol monomethyl ether acetate	1.2	
Vapor Pressure	<=1100 hPa @ 50 °C	
Density / Specific Gravity	No data available	
Bulk Density	Not applicable	Liquid
Vapor Density	No data available	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	ZN O
Molecular Weight	81.37
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

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Oxidizing agent.

10.6. Hazardous decomposition products

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

Section 11: Toxicological information

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

Product Information

(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
Zinc oxide (ZnO)	LD50 > 5000 mg/kg (Rat)	LD50 > 2000 mg/kg, 24h (Rat)	LC50 > 5.7 mg/L, 4h (Rat)

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Propylene glycol monomethyl ether acetate	LD50 = 8532 mg/kg (Rat)	LD50 > 5 g/kg (Rabbit)	LC50 = 16000 mg/m³ (Rat) 6 h
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(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory No data available

Skin No data available

Component	Test method	Test species	Study result
Zinc oxide (ZnO) 1314-13-2 (50.00)	in vivo OECD Test Guideline 406 Test method B.6	guinea pig	non-sensitising

(e) germ cell mutagenicity; No data available

Component	Test method	Test species	Study result
Zinc oxide (ZnO) 1314-13-2 (50.00)	in vitro OECD Test Guideline 471 Bacterial Reverse Mutation Test	in vitro: Bacteria	negative
	in vivo OECD Test Guideline 474 Mammalian	in vivo Mammalian	negative

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; No data available

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

12.1. Toxicity

Ecotoxicity effects The product contains following substances which are hazardous for the environment. Very

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toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Zinc oxide (ZnO)	LC50: = 1.55 mg/L, 96h static (Danio rerio)		
Propylene glycol monomethyl ether acetate	LC50: = 161 mg/L, 96h static (Pimephales promelas)	EC50: > 500 mg/L, 48h (Daphnia magna)	

Component	Microtox	M-Factor
Zinc oxide (ZnO)		10

12.2. Persistence and degradability Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary
Persistence Immiscible with water, May persist.
Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential May have some potential to bioaccumulate; Product has a high potential to bioconcentrate

Component	log Pow	Bioconcentration factor (BCF)
Propylene glycol monomethyl ether acetate	1.2	No data available

12.4. Mobility in soil Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water solubility.

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.

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

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 (1,2-Propanediol monomethyl ether acetate)
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 (1,2-Propanediol monomethyl ether acetate)
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 (1,2-Propanediol monomethyl ether acetate)
14.3. Transport hazard class(es) 3
14.4. Packing group III

14.5. Environmental hazards Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO

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
Zinc oxide (ZnO)	1314-13-2	215-222-5	-	-	X	X	KE-35565	X	X
Propylene glycol monomethyl ether acetate	108-65-6	203-603-9	-	-	X	X	KE-23315	X	X

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Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Zinc oxide (ZnO)	1314-13-2	X	ACTIVE	X	-	X	X	X
Propylene glycol monomethyl ether acetate	108-65-6	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>)

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)
Zinc oxide (ZnO)	1314-13-2	-	Use restricted. See entry 75. (see link for restriction details)	-
Propylene glycol monomethyl ether acetate	108-65-6	-	-	-

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
Zinc oxide (ZnO)	1314-13-2	Not applicable	Not applicable
Propylene glycol monomethyl ether acetate	108-65-6	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 .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

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

WGK Classification

Water endangering class = 2 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Zinc oxide (ZnO)	WGK2	
Propylene glycol monomethyl ether acetate	WGK1	

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Component	France - INRS (Tables of occupational diseases)
Propylene glycol monomethyl ether acetate	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 substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Propylene glycol monomethyl ether acetate 108-65-6 (50.00)		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

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

H226 - Flammable liquid and vapor

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/NDL - 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

Key literature references and sources for data

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

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

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)

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

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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.

Chemical incident response training.

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

Prepared By

Health, Safety and Environmental Department

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Revision Summary

Not applicable.

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

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 Safety Data Sheet