

SAFETY DATA SHEET

KLOZUR® ONE

SDS #: 7775-27-1-3
Revision date: 2021-02-04
Version 1.01



1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier

Product Name KLOZUR® ONE

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

Recommended Use: In situ and ex situ chemical oxidation of contaminants and compounds of concern for environmental remediation applications.

Restrictions on Use No uses to be advised against were identified

1.3. Details of the supplier of the safety data sheet

Manufacturer

PeroxyChem LLC
2005 Market Street
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Philadelphia, PA 19103
Phone: +1 267/ 422-2400 (General Information)
E-Mail: sdsinfo-pxc@evonik.com

Responsible Persons

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45128 Essen
Germany
Tel: +49 6181 59 4787
E-mail: sds-hu@evonik.com

1.4. Emergency telephone numbers

24-Hour Health Emergency: +49 2365 49 2232

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute oral toxicity	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Specific target organ systemic toxicity (single exposure)	Category 3
Oxidizing Solids	Category 3

For the full text of the H- and EUH- phrases mentioned in this Section, see Section 16.

2.2. Label Elements



Signal word:

WARNING

Hazard Statements

H302 - Harmful if swallowed
 H315 - Causes skin irritation
 H319 - Causes serious eye irritation
 H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
 H317 - May cause an allergic skin reaction
 H335 - May cause respiratory irritation
 H272 - May intensify fire; oxidizer

Precautionary statements

P220 - Keep/Store away from clothing/ combustible materials
 P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
 P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
 P405 - Store locked up

2.3. OTHER INFORMATION

General Hazards

Risk of decomposition by heat or by contact with incompatible materials

3. COMPOSITION/INFORMATION ON INGREDIENTS**Mixture**

Chemical name	EC-No	CAS-No	Weight %	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH registration number
Sodium Persulfate	231-892-1	7775-27-1	95	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Resp. Sens. 1 (H334) Skin Sens. 1 (H317) STOT SE 3 (H335) Ox. Sol. 3 (H272)	01-2119495975-15-0001
inorganic salt	Listed	-	< 1	Acute Tox. 4 (H302) Repr. 2 (H361d) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) Ox. Sol. 2 (H272)	-
organic salt	Not Listed	-	< 5		-

Occupational exposure limits, if available, are listed in section 8.

For the full text of the H- and EUH- phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES**4.1. Description of first-aid measures**

General Advice	Remove from exposure, lie down. Show this material safety data sheet to the doctor in attendance.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids intermittently. Consult a physician.
Inhalation	Remove from exposure, lie down. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately. Rinse mouth. Drink 1 or 2 glasses of water.

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

Itching; Redness; Coughing and/ or wheezing.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Indication of immediate medical attention and special treatment needed, if necessary	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES**5.1. Extinguishing media****Suitable Extinguishing Media**

Water. Cool containers with flooding quantities of water until well after fire is out.

Extinguishing media which shall not be used for safety reasons

Do NOT use water jet.

5.2. Special hazards arising from the substance or mixture

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases

In case of fire, formation of sulphur oxides, nitrogen oxides, toxic pyrolysis products.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

As in any fire, wear self-contained breathing apparatus and full protective gear.

OTHER INFORMATION

The product is not combustible. Contact with combustible materials may intensify fires. Adjust fire fighting measures to surrounding fire, if possible. Cool endangered containers with water spray and move out of danger area. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Keep off any unprotected persons. Avoid contact with the skin and the eyes. Avoid breathing dust. Wear personal protective equipment.

6.2. Environmental Precautions

Local authorities should be advised if significant spillages cannot be contained. Try to prevent the material from entering drains or water courses.

6.3. Methods and materials for containment and cleaning up

Vacuum, shovel or pump waste into a drum and label contents for disposal. Avoid dust formation. Store in closed container. Clean up spill area and treat as special waste. Dispose of waste as indicated in Section 13

Never add other substances or combustible waste to product residues.

6.4. Reference to other sections.

For personal protection see Section 8. Dispose of waste as indicated in Section 13

7. HANDLING AND STORAGE**7.1. Precautions for Safe Handling**

Wear personal protective equipment. Use only in area provided with appropriate exhaust ventilation. Avoid dust formation. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Avoid contact with skin and eyes. Avoid breathing dust. Remove and wash contaminated clothing before re-use. Reference to other sections.

Additional information

Use clean plastic or stainless steel scoops only

7.2. Conditions for safe storage, including any incompatibilities**Storage**

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat. Do not store near combustible materials. Avoid contamination of opened product. Keep away from food, drink and animal feedingstuffs. Avoid formation and deposition of dust.

Materials to avoid

Acids, alkalis, halides (fluorides, chlorides, bromides), combustible materials, reducing agents and organic compounds.

7.3. Specific end uses

Refer to Section 1 and the Annex.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters****Exposure Limits**

Ingredients with workplace control parameters

Chemical name	European Union	The United Kingdom	Ireland
Sodium Persulfate 7775-27-1			TWA 0.1 mg/m ³ STEL 0.3 mg/m ³ Sensitizer
Chemical name	France	Spain	Portugal
Sodium Persulfate 7775-27-1		TWA 0.1 mg/m ³	
Chemical name	Denmark	Finland	Norway
Sodium Persulfate 7775-27-1	TWA 2 mg/m ³		
Chemical name	Slovakia	Switzerland	Belgium
Sodium Persulfate 7775-27-1			TWA 0.1 mg/m ³
Chemical name	Greece	Hungary	Croatia
inorganic salt			TWA 5 mg/m ³

Derived No Effect Level (DNEL)

DNELs - General Population				
Sodium Persulfate (7775-27-1)				
Exposure pattern	Route of Exposure	Description	DNEL/DMEL	Most Sensitive Endpoint
Acute - systemic	dermal	LD0	200 mg/kg bw	Acute toxicity
Acute - systemic	Inhalation	LC0	295 mg/m ³	Acute toxicity
Acute - systemic	oral	LD0	30 mg/kg bw	Acute toxicity
Acute - local	dermal	LD0	1.124 mg/cm ³	Acute toxicity
Acute - local	Inhalation	LC0	295 mg/m ³	Acute toxicity
Long term - systemic	dermal	NOAEL	91 mg/kg bw/day	repeated dose toxicity
Long term - systemic	Inhalation	NOAEC	1.03 mg/m ³	repeated dose toxicity
Long term - systemic	oral	NOAEL	9.1 mg/kg bw/day	repeated dose toxicity
Long term - local	dermal	NOAEL	0.051 mg/cm ³	repeated dose toxicity
Long term - local	Inhalation	NOAEC	1.03 mg/m ³	repeated dose toxicity

Predicted No Effect Concentration (PNEC)

8.2. Exposure Controls

Engineering measures Provide local exhaust or general ventilation adequate to maintain exposures below permissible exposure limits.

Personal protective equipment

General information

Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

Respiratory Protection

P2 Dust mask when airborne dust concentrations elevated.

Eye/Face Protection

Eye protection recommended. Chemical goggles consistent with EN 166 or equivalent.

Skin and Body Protection

Wear suitable protective clothing.

Hand Protection

Protective gloves: Neoprene gloves, Polyvinylchloride, Natural Rubber.

Hygiene measures

Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Wash hands before breaks and after shifts. Keep work clothes separate, remove contaminated clothing - launder after open handling of product.

Environmental exposure controls

The product should not be allowed to enter drains, water courses or the soil.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Crystalline solid
Color	Light tan
Physical State	Solid
Odor	odorless
Odor threshold	Not applicable
pH	No information available 6.6 (1% solution)
Flash point	Not flammable
Melting Point/Range	Decomposes on heating 180 °C
Freezing Point	Not applicable
Boiling Point/Range	No information available Decomposes upon heating
Autoignition temperature	No evidence of combustion up to 600°C
Explosive properties	Not explosive
Oxidizing properties	oxidizer
Vapor pressure	6.07E-30 mm Hg at 25°C
Vapor density	No information available
Density	2.59 g/cm ³ (crystal density) 1.68
Partition coefficient	No information available (inorganic)
Water solubility	575 g/l @ 25 °C
Viscosity	(Solid)
Evaporation Rate	No information available
Decomposition temperature	81 °C (SADT)

9.2. OTHER INFORMATION

Bulk Density	1.12 No information available
Molecular weight	mixture
VOC content (%)	Not applicable

10. STABILITY AND REACTIVITY

10.1. Reactivity

None under normal use conditions

10.2. Chemical Stability

Stable under recommended storage conditions. Unstable if heated. Unstable on exposure to moisture. Unstable in presence of contamination.

10.3. Possibility of Hazardous Reactions

None under normal processing.

10.4. Conditions to avoid

Heat. Moisture.

10.5. incompatible materials

Acids, alkalis, halides (fluorides, chlorides, bromides), combustible materials, reducing agents and organic compounds. .

10.6. Hazardous Decomposition Products

Oxygen which supports combustion

11. TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects****Acute toxicity**

Product Information.

LD50 Dermal

Sodium Persulfate: > 10 g/kg

LD50 Oral

Sodium Persulfate: 895 mg/kg (rat)

LC50 Inhalation

Sodium Persulfate: >5.10 mg/L (4h) (rat)

Skin Contact

Irritating to skin. Persulfates in general, specifically diammonium persulfate and dipotassium persulfate, exhibited skin irritation properties in human case reports, following occupational exposure and consumer use. Slightly or non-irritating (rabbit).

Eye Contact

Irritating to eyes. Has been shown to exhibit eye irritation properties in human case reports following occupational exposure and consumer use. Non-irritating (rabbit).

Inhalation

Respiratory sensitizer: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause irritation of respiratory tract. Respiratory irritation has been seen in workers exposed to persulfates. In animals, diammonium persulfate, produced pathological respiratory irritation in a subchronic study.

Ingestion

May be harmful if swallowed.

Chronic toxicity**Sensitization**

Sodium Persulfate: May cause sensitization by inhalation and skin contact.

Neurological effects

Not neurotoxic.

Target organ effects

Eyes. Lungs.

Carcinogenicity

Contains no ingredient listed as a carcinogen.

Mutagenicity

Did not show mutagenic effects in animal experiments

Reproductive toxicity

Diammonium persulfate did not affect fertility or the developing fetus in animal studies (NOAEL: 250 mg/kg bw).

Developmental toxicity

None known.

Teratogenicity

Not teratogenic in animal studies.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Ecotoxicity effects of component substances.

Sodium Persulfate (7775-27-1)				
Active Ingredient(s)	Duration	Species	Value	Units
Sodium Persulfate	96 h LC50	Rainbow trout	163	mg/L
Sodium Persulfate	48 h LC50	Daphnia magna	133	mg/L
Sodium Persulfate	96 h LC50	Grass shrimp	519	mg/L
Sodium Persulfate	72 h EC50	Algae Selenastrum capricornutum	116	mg/L

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to Microorganisms	Toxicity to daphnia and other aquatic invertebrates
Trade secret	72 h EC50: 0.43-0.80 mg/L	96 h LC50: 2.97 - 3.11 mg/L (Cyprinus carpio) 96 h LC50: 3.16 - 3.77 mg/L (Cyprinus carpio) 96 h LC50: = 2.3 mg/L (Lepomis macrochirus) flow-through 96 h LC50: 1.8 - 5.6 mg/L (Lepomis macrochirus) static 96 h LC50: = 2.7 mg/L (Lepomis macrochirus) 96 h LC50: 1.08 - 1.38 mg/L (Oncorhynchus mykiss) 96 h LC50: 0.769 - 1.27 mg/L (Oncorhynchus mykiss) static 96 h LC50: 3.3 - 3.93 mg/L (Carassius auratus) static		48 h EC50: 0.06 mg/L (daphnia magna)

12.2. Persistence and degradability

Biodegradability does not pertain to inorganic substances. The organic components are biodegradable and can be expected to contribute to BOD.

12.3. Bioaccumulative potential

Does not bioaccumulate.

12.4. Mobility in soil

Dissociates into ions.

12.5. Results of PBT and vPvB assessment

PBT/vPvB assessment is not required for inorganic substances.

12.6. Other Adverse Effects

None known.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues / unused products	Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.
Product / Packaging disposal	Dispose of as hazardous waste in compliance with local and national regulations.
Contaminated Packaging	Empty remaining contents. Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

ADR/RID

UN/ID no	UN 1505
Proper Shipping Name	Sodium Persulfate Mixture
Hazard class	5.1
Packing Group	III

IMDG/IMO

UN/ID no	UN 1505
Proper Shipping Name	Sodium Persulfate Mixture
Hazard class	5.1
Packing Group	III

ICAO/IATA

UN/ID no	UN 1505
Proper Shipping Name	Sodium Persulfate Mixture
Hazard class	5.1
Packing Group	III

Transport Symbol



Special Precautions for users According to United Nations "Recommendations on the transport of dangerous goods"

Transport in bulk according to MARPOL 73/78 and the IBC Code See IMDG above

15. REGULATORY INFORMATION

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

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELI NCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)	NZIoC (New Zealand)
Sodium Persulfate 7775-27-1	X	X	231-892-1	X	X	X	X	X	X
inorganic salt	X	X	231-760-3	X	X	X	X	X	X

organic salt	-	-	H	X	X	H	X	X	X
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Directive 2008/98/EC on waste

Applicable

Major Accidents (Directive 2012/18/EU)

Included for storage of quantities exceeding 50 Tm

CWC (Chemical Weapons Convention) - Annex on Chemicals

Not applicable

15.2. Chemical Safety Report

A Chemical Safety Assessment has been carried out for this substance.

16. OTHER INFORMATION**Full text of H-phrases referred to in sections 2 and 3**

H272 - May intensify fire; oxidizer

H302 - Harmful if swallowed

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H317 - May cause an allergic skin reaction

H335 - May cause respiratory irritation

H412 - Harmful to aquatic life with long lasting effects

Issuing Date: 2021-02-09**Restrictions on Use**

This product's foreseen or recommended applications are: In situ and ex situ chemical oxidation of contaminants and compounds of concern for environmental remediation applications.

Revision date: 2021-02-04**Revision note** SDS sections updated: 1**List of Abbreviations and Acronyms**

ATE Acute Toxicity Estimate
 ADR European Agreement concerning the International Carriage of Dangerous Goods by Road
 AND European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
 CE50 Concentración Efectiva Media
 CEN European Committee for Standardisation
 C&L Classification and Labelling
 CLP Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
 CLV Ceiling Limit Value Par CAS# Chemical Abstracts Service number
 CMR Carcinogen, Mutagen, or Reproductive Toxicant
 CSA Chemical Safety Assessment
 CSR Chemical Safety Report
 DNEL Derived No Effect Level
 DOT Department of Transportation
 DPD Dangerous Preparations Directive 1999/45/EC
 DSD Dangerous Substances Directive 67/548/EEC
 DU Downstream User
 EC European Community
 ECHA European Chemicals Agency
 EC-Number EINECS and ELINCS Number (see also EINECS and ELINCS)
 EEA European Economic Area (EU + Iceland, Liechtenstein and Norway)
 EEC European Economic Community
 EINECS European Inventory of Existing Commercial Substances
 ELINCS European List of notified Chemical Substances
 EN European Standard
 EQS Environmental Quality Standard

EU European Union
Euphrac European Phrase Catalogue EWC
European Waste Catalogue (replaced by LoW –see below)
FDS Ficha de Datos de Seguridad
GES Generic Exposure Scenario
GHS Globally Harmonized System
IATA International Air Transport Association
ICAO-TI Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG International Maritime Dangerous Goods
IMO International Maritime Organization
IMSBC International Maritime Solid Bulk Cargoes
IT Information Technology
IUCLID International Uniform Chemical Information Database
IUPAC International Union for Pure Applied Chemistry
JRC Joint Research Centre
Kow octanol-water partition coefficient
LC50 Lethal Concentration to 50 % of a test population Lethal Dose to 50% of a test population (Median Lethal Dose)
LE Legal Entity
LLV Level Limit Value
LoW List of Wastes (see <http://ec.europa.eu/environment/waste/framework/list.htm>)
LR Lead RegistrantM/I Manufacturer / Importer MS Member States
MSDS Material Safety Data Sheet
NOEC No observed effect concentration
OC Operational Conditions
OECD Organization for Economic Co-operation and Development
OEL Occupational Exposure Limit
OJ Official Journal
OR Only Representative
OSHA European Agency for Safety and Health at work
PBT Persistent, Bioaccumulative and Toxic substance
PEC Predicted Effect Concentration
PNEC(s) Predicted No Effect Concentration(s)
PPE Personal Protection Equipment
(Q)SAR Qualitative Structure Activity Relationship
RCR Risk Characterization ratio
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID Regulations concerning the International Carriage of Dangerous Goods by Rail
RIP REACH Implementation Project
RMM Risk Management Measure
SADT Self-accelerating decomposition temperature
SCBA Self-Contained Breathing Apparatus
SDS Safety data sheet
SIEF Substance Information Exchange Forum
SME Small and Medium sized Enterprises
STEL Short-term exposure limit
STOT Specific Target Organ Toxicity (STOT)
RE Repeated Exposure(STOT)
SE Single Exposure Par SVHC Substances of Very High Concern
TSCA Toxic Substances Control Act
TWA Time Weighed Average
UN United Nations
vPvB Very Persistent and Very Bioaccumulative / mPmB Muy Persistente y Muy Bioacumulativo
WGK Wassergefährdungsklassen

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KLOZUR® ONE

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End of Safety Data Sheet
