

SAFETY DATA SHEET

KLOZUR® CR

SDS #: 7775-27-1-2
Revision date: 2019-12-16
Version 1.01



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

1.1. Product Identifier

Product Name	KLOZUR® CR
Alternate Commercial Name	KLOZUR® CR 2018
Synonyms	Sodium Peroxydisulfate; Disodium Peroxydisulfate; Peroxydisulfuric acid, disodium salt; Peroxydisulfuric acid, sodium salt; Calcium Peroxide
EC-No	231-892-1
REACH registration number	01-2119495975-15-0001

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/Supplier
PeroxyChem LCC
Only Representative: PeroxyChem Spain s.l.u.
C/ Afueras s/n 50784 La Zaida (Zaragoza) Spain
Tel: +34 976 179600

E-mail address sdsinfo-emea@peroxychem.com

1.4. Emergency telephone numbers

For leak, fire, spill or accident emergencies, call:
+1 703-527-3887 (CHEMTREC)
+1 303/ 389-1409 (Medical - U.S. - Call Collect)

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 1
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:

DANGER

Hazard Statements

H302 - Harmful if swallowed
 H315 - Causes skin irritation
 H318 - Causes serious eye damage
 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
 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**Substance**

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	40-60	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
Calcium Peroxide	215-139-4	1305-79-9	40-60	Eye corr. 1 (H318) STOT SE 3 (H335) Ox. Sol. 2 (H272)	see 930-930-0
Calcium Hydroxide	215-137-3	1305-62-0	8 - 12	Skin corr. 1 (H314) eye. corr. 1 (H318) STOT SE 3(H335)	see 930-930-0

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. In case of contact, immediately flush eyes with plenty of water. If symptoms persist, call 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

Knock down dust with water spray. Recover the product in solid form, if possible. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and materials for containment and cleaning up

Do not return product to the original storage container/tank due to risk of decomposition. Vacuum, shovel or pump waste into a drum and label contents for disposal. Store in closed container. Do not allow material to enter storm or sanitary sewer system. Clean up spill area and treat as special waste

Never add other substances or combustible waste to product residues. Containers of contaminated waste material should be monitored for signs of decomposition (fuming or smoking).

6.4. Reference to other sections.

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 feedings. Avoid formation and deposition of dust.

Materials to avoid

Acids, Bases, Halides, Oxidizing agents, Strong reducing agents, Combustible materials.

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
Calcium Hydroxide 1305-62-0		STEL 4 mg/m ³ STEL 15 mg/m ³ TWA 1 mg/m ³ TWA 5 mg/m ³	TWA 1 mg/m ³ STEL 4 mg/m ³
Chemical name	France	Spain	Portugal
Sodium Persulfate 7775-27-1		TWA 0.1 mg/m ³	
Calcium Hydroxide 1305-62-0	TWA 5 mg/m ³	TWA 1 mg/m ³ STEL 4 mg/m ³	TWA 5 mg/m ³
Chemical name	Germany	Italy	The Netherlands
Calcium Hydroxide 1305-62-0	AGW 1 mg/m ³		STEL 4 mg/m ³ TWA 1 mg/m ³
Chemical name	Denmark	Finland	Norway
Sodium Persulfate 7775-27-1	TWA 2 mg/m ³		
Calcium Hydroxide 1305-62-0	TWA 1 mg/m ³ TWA 5 mg/m ³	TWA 1 mg/m ³ STEL 4 mg/m ³	TWA 1 mg/m ³ STEL 2 mg/m ³
Chemical name	Sweden	Austria	Slovenia
Calcium Hydroxide 1305-62-0	TLV 1 mg/m ³ Binding STEL 4 mg/m ³	STEL 4 mg/m ³ TWA 1 mg/m ³	STEL 4 mg/m ³ TWA 1 mg/m ³
Chemical name	Luxembourg	Poland	Estonia
Calcium Hydroxide 1305-62-0	TWA 1 mg/m ³	TWA 2 mg/m ³ TWA 1 mg/m ³ STEL 4 mg/m ³ STEL 6 mg/m ³	STEL 4 mg/m ³ TWA 1 mg/m ³
Chemical name	Latvia	Lithuania	Czech Republic
Calcium Hydroxide 1305-62-0	TWA 1 mg/m ³ STEL 4 mg/m ³	S* TWA 1 mg/m ³ STEL 4 mg/m ³	TWA 1 mg/m ³ Ceiling 4 mg/m ³

Chemical name	Romania	Bulgaria	Russia
Calcium Hydroxide 1305-62-0	STEL 4 mg/m ³ TWA 1 mg/m ³	STEL 4 mg/m ³ TWA 1 mg/m ³	S* MAC 2 mg/m ³
Chemical name	Greece	Hungary	Croatia
Calcium Hydroxide 1305-62-0	TWA 1 mg/m ³ STEL 4 mg/m ³	STEL 4mg/m ³ TWA 1mg/m ³	STEL 4 mg/m ³ TWA 1 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
Calcium Hydroxide (1305-62-0)				
Exposure pattern	Route of Exposure	Description	DNEL/DMEL	Most Sensitive Endpoint
Long term - local	Inhalation	DNEL	1.0 mg/m ³	
Acute - local	Inhalation	DNEL	4.0 mg/m ³	

Predicted No Effect Concentration (PNEC)

8.2. Exposure Controls

Engineering measures

Ensure adequate ventilation.

Personal protective equipment

Respiratory Protection

P2 Dust mask when airborne dust concentrations elevated.

Eye/Face Protection

Eye protection recommended: Tightly fitting safety goggles

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

Prevent product from entering drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Fine granules
Color	Off-white
Physical State	Solid
Odor	odorless
Odor threshold	Not applicable
pH	11.2 (1% solution)
Flash point	Not flammable No information available

Melting Point/Range	Decomposes on heating Decomposes
Freezing Point	Not applicable
Boiling Point/Range	Decomposes
Autoignition temperature	Product is not self-ignitable.
Explosive properties	Not explosive
Vapor pressure	No information available
Vapor density	No information available
Relative Density	(5 to 30 % slurries) 1.0-1.9
Partition coefficient	No information available (inorganic)
Water solubility	slightly soluble
Viscosity	No information available (Solid)
Evaporation Rate	No information available > 100 °C (assume)

9.2. OTHER INFORMATION

Bulk Density 830 kg/m³ 51.8 lb/cu ft (loose)

10. STABILITY AND REACTIVITY

10.1. Reactivity

Strong oxidizer

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

Contains a strong oxidizer and will react violently with flammable or reducing agents. Oxidizable material can be ignited by grinding and may become explosive.

10.4. Conditions to avoid

Heat. (decomposes at temperatures >100 °C); Moisture.

10.5. incompatible materials

Acids, Bases, Halides, Oxidizing agents, Strong reducing agents, Combustible materials.

10.6. Hazardous Decomposition Products

Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

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LD50 Dermal	No data available for the formulation. > 10,000 mg/kg (rabbit) Sodium Persulfate
LD50 Oral	No data available for the formulation. 895 mg/kg (rat) Sodium Persulfate
LC50 Inhalation	No data available for the formulation. => 5.1 mg/L (4-hr) (rat) Sodium Persulfate

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 Corrosive to the eyes and may cause severe damage including blindness.

Inhalation 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. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Ingestion May be harmful if swallowed.

Chronic toxicity

Sensitization Sensitizing to skin and respiratory system. Positive in a local lymph node assay. (based on components).

Target organ effects Eyes. Skin. Respiratory System.

Carcinogenicity Not recognized as carcinogenic by Research Agencies (IARC, NTP, OSHA, ACGIH).

Mutagenicity This product is not recognized as mutagenic by Research Agencies

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

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

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
Calcium Hydroxide		96 h LC50: = 160 mg/L (Gambusia affinis) static		

12.2. Persistence and degradability

Biodegradability does not pertain to inorganic substances.

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	Should not be released into the environment. It must undergo special treatment, e.g. at suitable disposal site, to comply 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 1479
Proper Shipping Name	OXIDIZING SOLID N.O.S.
Hazard class	5.1
Packing Group	II

IMDG/IMO

UN/ID no	UN 1479
Proper Shipping Name	OXIDIZING SOLID N.O.S.
Hazard class	5.1
Packing Group	II
Proper Shipping Name	SODIUM PERSULFATE

ICAO/IATA

UN/ID no	UN 1479
Proper Shipping Name	OXIDIZING SOLID N.O.S.
Hazard class	5.1
Packing Group	II

Transport Symbol



Environmental Hazards

This product contains no chemical substance that is listed as a marine pollutant according to DOT

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	X	X	231-892-1	X	X	X	X	X	X

7775-27-1									
Calcium Peroxide 1305-79-9	X	X	215-139-4	X	X	X	X	X	X
Calcium Hydroxide 1305-62-0	X	X	215-137-3	X	X	X	X	X	X

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

Issuing Date: 2015-07-20**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: 2019-12-16**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 Registrant M/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 Weighted Average
UN United Nations
vPvB Very Persistent and Very Bioaccumulative / mPmB Muy Persistente y Muy Bioacumulativo
WGK Wassergefährdungsklassen

Disclaimer

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End of Safety Data Sheet
