

POTASSIUM PERSULPHATE

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

POTASSIUM PERSULPHATE
Potassium Peroxydisulfate; Potassium Persulfate
CAS: 7727-21-1

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Polymerisation initiator for emulsion/suspension polymers (e.g. SBR latex, acrylics); etching agent for printed circuit boards; oxidising/bleaching agent in textile processing and hair-lightening powder formulations; laboratory oxidant. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

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1.4 Emergency phone number:

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SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), based on well-established, publicly documented data for this CAS number.

Ox. Sol. 3	Oxidising solid, Category 3, H272
Acute Tox. 4	Acute oral toxicity, Category 4, H302
Skin Irrit. 2	Skin irritation, Category 2, H315
Skin Sens. 1	Skin sensitisation, Category 1, H317
Eye Irrit. 2	Eye irritation, Category 2, H319
STOT SE 3	Respiratory tract irritation, Category 3, H335

2.2 GHS label elements, including precautionary statements:

GHS: Danger

Hazard statements:

Ox. Sol. 3: H272 – May intensify fire; oxidizer.
Acute Tox. 4: H302 – Harmful if swallowed.
Skin Irrit. 2: H315 – Causes skin irritation.
Skin Sens. 1: H317 – May cause an allergic skin reaction.
Eye Irrit. 2: H319 – Causes serious eye irritation.
STOT SE 3: H335 – May cause respiratory irritation.

Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220: Keep/Store away from clothing and other combustible materials.
P261: Avoid breathing dust.
P264: Wash hands thoroughly after handling.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P302+P352: IF ON SKIN: Wash with plenty of water.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
P370+P378: In case of fire: Use water spray/fog to extinguish.
P501: Dispose of contents/container in accordance with local regulations.

2.3 Other hazards which do not result in classification:

No other hazards which do not result in classification are known at this time.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Potassium Persulphate (Potassium Peroxydisulfate)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7727-21-1	POTASSIUM PERSULPHATE — Potassium Persulphate – Ox. Sol. 3: H272; Acute Tox. 4: H302; Skin Irrit. 2: H315; Skin Sens. 1: H317; Eye Irrit. 2: H319; STOT SE 3: H335 – Danger	Technical / Reagent grade, min. 99% w/w K2S2O8

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance immediately, showing the SDS of this product, if symptoms persist or if there is any doubt.

By inhalation:

Remove the person affected from the area of exposure to fresh air and keep at rest. If breathing is difficult, administer oxygen. If irritation, coughing or breathing difficulty persists, seek medical attention.

By skin contact:

Remove contaminated clothing and footwear. Wash the affected skin thoroughly with plenty of soap and water. If irritation develops or persists, seek medical attention.

By eye contact:

Rinse eyes immediately with plenty of clean, lukewarm water for at least 15 minutes, holding the eyelids open. Remove contact lenses if present and easy to do. If irritation persists, consult an ophthalmologist.

By ingestion/aspiration:

Rinse mouth with water. Do not induce vomiting. If the person is conscious, give plenty of water to drink. Seek medical attention if large quantities have been swallowed or if discomfort persists.

4.2 Most important symptoms/effects, acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

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

Treat symptomatically. No specific antidote is available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Water spray/fog in large quantities (flood with water).

Unsuitable: Dry chemical powder, foam and carbon dioxide are not recommended as the sole extinguishing media for significant quantities, as this oxidiser can supply its own oxygen.

5.2 Specific hazards arising from the chemical:

Strong oxidiser (Ox. Sol. 3, H272). Not itself readily combustible but will intensify the combustion of other materials. Decomposes on heating (from ≈100–120°C, before melting), releasing oxygen, sulfur oxides (SOx) and other irritant fumes. Contact with combustible or reducing materials may cause fire or violent decomposition.

5.3 Special protective actions for fire-fighters:

Evacuate all non-essential personnel. Intervention only by trained personnel aware of the hazards of the product. Wear self-contained breathing apparatus and full protective clothing in the event of fire.

Additional provisions:

Keep combustible materials away from the fire area. Cool fire-exposed containers with water if safe to do so. Wear self-contained breathing apparatus due to the potential release of sulfur oxide fumes on thermal decomposition.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Avoid generating and inhaling dust. Ventilate the area. Use the personal protective equipment described in section 8. Keep unprotected persons away from the spill area.

For emergency responders:

Wear appropriate protective equipment as described in section 8. Avoid raising dust during clean-up operations.

6.2 Environmental precautions:

Avoid, as far as possible, release of the product into the environment in large quantities. Contain spillage and prevent entry into drains, watercourses or soil. Notify the relevant authority in case of significant exposure to the environment.

6.3 Methods and materials for containment and cleaning up:

Sweep up or vacuum (avoiding dust dispersion) and collect in a suitable, labelled container for reuse or disposal. Wash the contaminated area with water after the bulk of the material has been removed.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Avoid generating and inhaling dust. Avoid contact with skin and eyes. Keep away from heat and all combustible, reducing or organic materials. Wash thoroughly after handling; contaminated clothing should not leave the workplace, due to sensitisation potential.

B. Technical recommendations for the prevention of fires and explosions:

Segregate from combustible materials, reducing agents, organic matter and finely divided metals (see section 10.5). Avoid conditions (heat, contamination) that could initiate self-accelerating decomposition.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke during handling; wash hands and exposed skin thoroughly after handling and before breaks.

D. Technical recommendations to prevent environmental risks:

Avoid release to drains, watercourses or soil. Store containers on an impervious surface. Follow the protective measures given in section 8.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Minimum Temp.	5°C
Maximum Temp.	30°C (avoid heat build-up; this substance can undergo self-accelerating thermal decomposition if significantly overheated or contaminated)
Maximum time	24 Months (in original, unopened packaging)

B. General conditions for storage:

Store in a cool (below 30°C), dry, well-ventilated place away from direct sunlight, heat sources and all combustible, organic or reducing materials. Keep containers tightly closed and monitor for any signs of self-heating during storage. For additional information see subsection 10.5.

7.3 Specific end use(s):

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):

Identification	Occupational Exposure Limit Type	Value
Persulfates (as persulfate), including Potassium Persulphate CAS: 7727-21-1	ACGIH TLV – Time Weighted average concentration (8 hrs)	0.1 mg/m³

8.2 Appropriate engineering controls:

Use local exhaust ventilation or general dilution ventilation to control dust levels below the applicable occupational exposure limit. Provide eyewash stations and washing facilities near the work area.

B. Respiratory protection:

Use a dust mask/respirator fitted with a P2 particulate filter where engineering controls cannot keep airborne concentrations below the occupational exposure limit; due to sensitisation potential, avoid all unnecessary dust exposure.

C. Specific protection for the hands:

Impervious protective gloves (e.g. nitrile) are required to prevent skin contact and sensitisation. Replace at any sign of damage or contamination.

D. Eye and face protection:

Chemical safety goggles are required to prevent dust/particle contact with the eyes.

E. Bodily protection:

Wear suitable protective clothing to minimise skin contact. Contaminated clothing should be removed immediately and laundered before reuse, and should not be taken out of the workplace.

F. Additional emergency measures:

Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) should be available near the work area.

Environmental exposure controls:

Avoid release of the product to drains, watercourses or soil. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid
Appearance	Crystalline powder or granules
Color	White
Odor	Odorless
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	Not applicable – decomposes before boiling
Vapour pressure at 20°C / 50°C	Not relevant *
Evaporation rate at 20°C	Not relevant *
Product Description	
Density / Relative density at 20°C	2.48 g/cm³
Dynamic / Kinematic viscosity	Non-applicable (solid)
Concentration	Technical / Reagent grade, min. 99% w/w K2S2O8
pH	3–5 (saturated aqueous solution) – acidic
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	Not applicable – inorganic salt
Solubility in water at 20°C	≈5.3 g/100 mL at 20°C (moderately soluble; increases with temperature)
Decomposition temperature	≈100–120°C (decomposes, before melting, releasing oxygen)
Melting point/freezing point	Decomposes before melting
Flammability	
Flash Point	Non-applicable (inorganic solid)
Flammability (solid, gas)	Non-flammable, but a strong oxidiser that will intensify the combustion of other materials
Autoignition temperature	Not relevant *
Lower / Upper flammability limit	Not relevant *
Particle Characteristics	
Median equivalent diameter	Typical value — refer to current specification sheet

* Not relevant due to the nature of the product, not providing information on the properties of its hazards.

9.2 Other information:

Explosive properties	Not explosive as supplied; may undergo self-accelerating decomposition if significantly heated or contaminated
Oxidising properties	Oxidising solid, Category 3 (H272)
Corrosive to metals	Not significantly corrosive to common metals under normal conditions
Heat of combustion	Not relevant *
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Strong oxidiser; slowly decomposes even at room temperature, releasing oxygen and gradually losing active-oxygen content (hence the recommended cool storage). Reacts vigorously with reducing agents, combustible materials and organic matter.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Contact with reducing agents, combustible/organic materials or contamination may initiate rapid or self-accelerating decomposition, releasing oxygen, sulfur oxides and heat. Avoid friction, shock and elevated temperature.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Avoid friction/shock, especially if contaminated	Not applicable	Avoid heating above ≈40°C / storage above 30°C	Avoid prolonged direct sunlight/heat	Keep dry – moisture accelerates decomposition

10.5 Incompatible materials:

Combustible / Organic Materials	Reducing Agents	Strong Bases	Finely Divided Metals
Avoid contact – fire/decomposition risk	Avoid contact – vigorous reaction	Avoid contact	Avoid contact – may accelerate decomposition

10.6 Hazardous decomposition products:
Oxygen, sulfur oxides (SOx) and potassium sulfate on thermal decomposition (from ≈100–120°C).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:
In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):
Harmful if swallowed (H302). May cause gastrointestinal irritation, nausea and vomiting.

B. Inhalation (acute effect):
May cause respiratory tract irritation (H335) due to dust; repeated exposure to persulfate dusts has been associated with occupational asthma/respiratory sensitisation in some individuals, notably in hairdressing/bleaching-powder contexts.

C. Contact with skin and eyes (acute effect):
Causes skin irritation (H315) and may cause an allergic skin reaction (H317, Skin Sens. 1). Causes serious eye irritation (H319).

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):
Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data. IARC: Not listed.

E. Sensitizing effects:
May cause an allergic skin reaction (H317). Persulfates are also recognised potential respiratory sensitisers in susceptible individuals; avoid all unnecessary contact and dust inhalation.

F. Specific target organ toxicity (STOT) – single exposure:
May cause respiratory irritation (H335).

G. Specific target organ toxicity (STOT) – repeated exposure:
Classification criteria are not met based on available data.

H. Aspiration hazard:
Classification criteria are not met based on available data; not applicable to solids of this nature.

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Potassium Persulphate CAS: 7727-21-1	LD50 oral (rat): ≈800–900 mg/kg (literature reference, consistent with Acute Tox. 4)	Rat

SECTION 12: ECOLOGICAL INFORMATION

May be harmful to aquatic organisms at elevated concentrations due to its oxidising action; not formally classified as hazardous to the aquatic environment under GHS based on available data.

12.1 Toxicity:

Identification	Acute Toxicity	Species	Genus
Potassium Persulphate CAS: 7727-21-1	LC50 (fish): Typical value — refer to current specification sheet	Not available	Fish

12.2 Persistence and degradability:
Decomposes in aqueous solution over time, releasing sulfate ions; not expected to persist as the parent compound in the environment.

12.3 Bioaccumulative potential:
Not expected to bioaccumulate (inorganic salt).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	No	Highly mobile (soluble)

12.5 Results of PBT and vPvB assessment:
Non-applicable – this substance is an inorganic/mineral salt and is not subject to PBT/vPvB assessment criteria.

12.6 Other adverse effects:
Oxidising action may be locally harmful to aquatic life at the point of release; avoid discharge to watercourses.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:
Do not mix with combustible or reducing waste. Dispose of as hazardous/oxidiser waste in accordance with local regulations, via a licensed waste disposal contractor.
Refer to national and local regulations on waste management. Do not discharge directly into drains, watercourses or onto the ground.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	UN1492
14.2 UN proper shipping name	POTASSIUM PERSULPHATE
14.3 Transport hazard class(es)	5.1 (Oxidising substance)
14.4 Packing group	III
14.5 Environmental hazard	No
14.6 Special precautions for user	Keep away from combustible/organic materials and reducing agents during transport and storage. Physico-chemical properties: see section 9.
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	UN1492
14.2 UN proper shipping name	POTASSIUM PERSULPHATE
14.3 Transport hazard class(es)	5.1 (Oxidising substance)
14.4 Packing group	III
14.5 Marine pollutant	No
14.6 Special precautions for user	Keep away from combustible/organic materials and reducing agents during transport and storage. Physico-chemical properties: see section 9.
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	UN1492
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14.2 UN proper shipping name	POTASSIUM PERSULPHATE
14.3 Transport hazard class(es)	5.1 (Oxidising substance)
14.4 Packing group	III
14.5 Environmental hazard	No
14.6 Special precautions for user	Keep away from combustible/organic materials and reducing agents during transport and storage. Physico-chemical properties: see section 9.
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product. This substance is classified as an oxidising solid (Category 3, H272) with additional acute oral toxicity, skin/eye irritation and skin sensitisation hazards under the GHS; handle with the full PPE described in section 8.

Other legislation:

- Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
- The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
- The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
- Public Liability Insurance Act, 1991
- Food Safety and Standards Act, 2006 (where the substance is permitted as a food/feed additive)

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

- H272: May intensify fire; oxidizer.
- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification and labelling data for this CAS number.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer | ATE: Acute Toxicity Estimate | PNOC: Particulates Not Otherwise Classified

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET