

AMMONIUM PERSULPHATE

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

AMMONIUM PERSULPHATE
Ammonium Persulfate; Diammonium Peroxodisulfate; APS
CAS: 7727-54-0

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Oxidizing agent/bleaching agent, polymerization initiator (free-radical), PCB/printed circuit board etchant, hair-bleaching formulations, water treatment. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
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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).

Ox. Sol. 3	Oxidizing solid, Category 3, H272
Acute Tox. 4 (Oral)	Acute oral toxicity, Category 4, H302
Skin Irrit. 2	Skin irritation, Category 2, H315
Eye Irrit. 2	Eye irritation, Category 2, H319
Skin Sens. 1	Skin sensitisation, Category 1, H317
Resp. Sens. 1	Respiratory sensitisation, Category 1, H334
STOT SE 3	Respiratory tract irritation, single exposure, 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.
Eye Irrit. 2: H319 – Causes serious eye irritation.
Skin Sens. 1: H317 – May cause an allergic skin reaction.
Resp. Sens. 1: H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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 away from clothing and other combustible materials.
P221: Take any precaution to avoid mixing with combustibles/organic materials.
P261: Avoid breathing dust.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection.
P285: In case of inadequate ventilation wear respiratory protection.
P302+P352: IF ON SKIN: Wash with plenty of water.
P304+P341: IF INHALED: If breathing is difficult, 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.
P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
P362+P364: Take off contaminated clothing and wash it before reuse.
P370+P378: In case of fire, use water spray or fog to extinguish – do NOT use dry chemical/CO2 on bulk oxidizer fires if water is practicable.
P371+P380+P375: In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards which do not result in classification:

Strong oxidizer; contact with combustible/organic materials, reducing agents or finely divided metals may cause fire. Not a PBT or vPvB substance.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Ammonium Persulphate
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7727-54-0	Ammonium Persulphate — Ox. Sol. 3: H272; Acute Tox. 4: H302; Skin Irrit. 2: H315; Eye Irrit. 2: H319; Skin Sens. 1: H317; Resp. Sens. 1: H334; STOT SE 3: H335 – Danger	≥ 98% (technical/industrial grade)

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.

By inhalation:

Remove the affected person to fresh air and keep at rest in a position comfortable for breathing. If breathing difficulties, allergic symptoms, or wheezing develop, seek medical attention immediately.

By skin contact:

Remove contaminated clothing and footwear. Wash skin thoroughly with plenty of water and soap. Seek medical attention if irritation or allergic reaction develops.

By eye contact:

Rinse immediately with plenty of water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek medical attention.

By ingestion/aspiration:

Rinse mouth with water. Do not induce vomiting. Give water to drink if conscious. Seek medical attention immediately, showing the SDS.

4.2 Most important symptoms/effects, acute and delayed:

Irritation of eyes, skin and respiratory tract. May cause allergic skin reaction or respiratory sensitisation with repeated/prolonged exposure (occupational asthma has been reported with persulfate salts). See sections 2 and 11.

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

Treat symptomatically. Persons with a history of asthma or respiratory sensitisation to persulfates should avoid further exposure.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Water spray/fog is preferred as it also cools and dilutes the oxidizer. Use large amounts of water.

Unsuitable: Do not use dry chemical, foam or CO2 as the sole extinguishing agent on large/bulk fires, as these may not control re-ignition from the oxidizer; use only in combination with water where water is unavailable.

5.2 Specific hazards arising from the chemical:

Non-combustible itself but is a strong oxidizer that can intensify fire and support combustion of other materials. Decomposes on heating releasing oxygen, sulfur oxides and ammonia; may cause containers to rupture.

5.3 Special protective actions for fire-fighters:

Evacuate all non-essential personnel. Wear self-contained breathing apparatus and full protective clothing. Cool containers exposed to fire with water spray from a safe distance.

Additional provisions:

Avoid inhalation of decomposition fumes (sulfur oxides, ammonia). Contain fire-fighting water run-off; do not allow entry to drains/water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Remove all sources of ignition and combustible/organic material from the vicinity. Avoid raising dust. Use personal protective equipment as per section 8.

For emergency responders:

Wear suitable protective equipment including respiratory protection. See section 8.

6.2 Environmental precautions:

Avoid release to drains, water courses or soil. Contain spillage.

6.3 Methods and materials for containment and cleaning up:

Sweep up carefully (avoid dust generation) and place in a suitable, clean, dry, labelled container away from combustible materials for disposal or recovery. Do not use combustible materials (e.g., sawdust, paper) to absorb spillage.

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 generation and inhalation of dust. Avoid contact with eyes and skin. Keep away from combustible/organic materials, reducing agents, powdered metals and strong acids/bases. Ensure adequate ventilation.

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

Segregate from combustible and organic materials, reducing agents and metal powders. Keep containers tightly closed and away from heat/ignition sources. For bulk storage, consult Suraj Chemicals.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke while handling. Wash hands thoroughly after use.

D. Technical recommendations to prevent environmental risks:

Prevent spillage from entering drains or water courses.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Minimum Temp.	Ambient
Maximum Temp.	30°C (cool, dry place)
Maximum time	Typical value – refer to current specification sheet

B. General conditions for storage:

Store in a cool, dry, well-ventilated place segregated from combustible and organic materials, reducing agents and strong acids/bases. Keep containers tightly closed and away from direct sunlight and heat sources. 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
Ammonium Persulphate (as persulfates) CAS: 7727-54-0	Time Weighted average concentration (8 hrs)	0.1 mg/m³

8.2 Appropriate engineering controls:

Use local exhaust ventilation to control dust below the exposure limit. Consult the manufacturer's information leaflet for storage, use, cleaning and maintenance of PPE.

- B. Respiratory protection:**
Use a NIOSH/BIS-approved particulate respirator (e.g., N95/FFP2 or higher) where dust is generated; use isolation equipment if the contaminant carries additional warnings.
- C. Specific protection for the hands:**
Chemical-resistant gloves (nitrile). Replace gloves at any sign of damage.
- D. Eye and face protection:**
Chemical safety goggles against dust and splash.
- E. Bodily protection:**
Chemical-resistant protective clothing; antistatic footwear recommended given oxidizer hazard.
- F. Additional emergency measures:**
Emergency shower and eyewash stations should be available in the work area.
- Environmental exposure controls:**
Avoid environmental spillage of both the product and its container. 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 (crystalline granules/powder)
Appearance	White crystalline granules
Color	White
Odor	Odorless
Odour threshold	Not relevant
Volatility	
Decomposition temperature	≈ 120°C (decomposes before melting)
Vapour pressure at 20°C	Negligible (solid)
Evaporation rate at 20°C	Non-applicable (solid)
Product Description	
Molecular weight	≈ 228.2 g/mol
Density / Relative density at 20°C	≈ 1.98 g/cm³
Bulk density	Typical value – refer to current specification sheet
pH (1% aqueous solution)	≈ 3.0 – 4.0 (acidic)
Solubility in water at 20°C	Soluble, ≈ 580 g/L
Partition coefficient n-octanol/water	Not relevant (inorganic salt)
Melting point/freezing point	Decomposes at ≈ 120°C
Flammability	
Flash Point	Non-applicable
Flammability (solid, gas)	Non-flammable but oxidizing – supports combustion
Autoignition temperature	Non-applicable
Lower / Upper flammability limit	Non-applicable
Particle Characteristics	
Median equivalent diameter	Typical value – refer to current specification sheet

* Values marked "Typical value" are not standardized and vary by batch/grade – refer to the current specification sheet.

9.2 Other information:

Explosive properties	Not explosive; strong oxidizer
Oxidising properties	H272 – May intensify fire; oxidizer (Ox. Sol. 3)
Corrosive to metals	May be mildly corrosive to some metals in solution
Heat of combustion	Non-applicable (non-combustible)
Viscosity	Non-applicable (solid)
Refraction index	Not relevant

SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity:**
Strong oxidizer. Reacts, sometimes violently, with combustible materials, organic materials, reducing agents, powdered metals and strong acids/alkalis. Aqueous solutions slowly decompose releasing oxygen.
- 10.2 Chemical stability:**
Stable under recommended storage conditions (cool, dry, away from combustibles). Decomposes slowly at ambient temperature and more rapidly on heating or in contact with moisture/incompatible materials.
- 10.3 Possibility of hazardous reactions:**
May decompose exothermically if contaminated with combustible/organic materials, reducing agents or metal powders, with risk of fire. Releases oxygen gas and heat on decomposition – closed containers may build pressure.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Avoid	Not significant	Avoid – accelerates decomposition	Avoid prolonged exposure	Avoid contact with moisture

10.5 Incompatible materials:

Combustible / Organic Materials	Reducing Agents	Powdered Metals	Strong Acids/Alkalis
Avoid contact – fire/explosion risk	Avoid contact – vigorous reaction	Avoid contact	Avoid contact

- 10.6 Hazardous decomposition products:**
Oxygen, sulfur oxides (SOx) and ammonia on thermal decomposition.

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. May cause irritation of the mouth, throat and gastrointestinal tract.

B. Inhalation (acute effect):

Dust may cause irritation of the respiratory tract and has caused occupational asthma/respiratory sensitisation in exposed workers (persulfate salts as a class).

C. Contact with skin and eyes (acute effect):

Causes skin irritation and may cause allergic skin reaction. Causes serious eye irritation.

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 allergic skin reaction (H317). May cause allergy or asthma symptoms or breathing difficulties if inhaled (H334) – a recognised occupational respiratory sensitiser.

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 beyond the sensitisation noted above.

H. Aspiration hazard:

Not relevant (solid).

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Ammonium Persulphate CAS: 7727-54-0	LD50 oral: ≈ 689 mg/kg	Rat
	LD50 dermal: >2000 mg/kg	Rabbit

SECTION 12: ECOLOGICAL INFORMATION

Oxidizing salt; moderate aquatic toxicity reported for persulfates. Avoid release to the environment.

12.1 Toxicity:

Identification	Acute Toxicity	Species	Genus
Ammonium Persulphate CAS: 7727-54-0	LC50: ≈ 46 mg/L (96h)	Non-applicable	Fish

12.2 Persistence and degradability:

Decomposes/hydrolyses in water to sulfate and ammonium species; not expected to persist as the parent compound.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate (inorganic salt, log Pow not applicable).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	Highly mobile (soluble)	Highly mobile (soluble)

12.5 Results of PBT and vPvB assessment:

Non-applicable – inorganic substance, PBT/vPvB criteria do not apply.

12.6 Other adverse effects:

Avoid discharge to water courses; releases sulfate and ammonium ions on degradation.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dissolve in a large volume of water and treat with a reducing agent (e.g., sodium thiosulfate/sodium bisulfite) under controlled conditions before disposal, or dispose of via a licensed hazardous-waste contractor in accordance with local regulations. For packaging: keep free of combustible residues; recover/recycle where possible.

Refer to national and local regulations on waste management.

SECTION 14: TRANSPORT INFORMATION

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

14.1 UN number	UN1444
14.2 UN proper shipping name	AMMONIUM PERSULFATE
14.3 Transport hazard class(es)	5.1
14.4 Packing group	III
14.5 Environmental hazard	No
14.6 Special precautions for user	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	UN1444
14.2 UN proper shipping name	AMMONIUM PERSULFATE
14.3 Transport hazard class(es)	5.1
14.4 Packing group	III
14.5 Marine pollutant	No
14.6 Special precautions for user	EmS Codes: F-A, S-Q Segregation group: Not relevant
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	UN1444
14.2 UN proper shipping name	AMMONIUM PERSULFATE

14.3 Transport hazard class(es)	5.1
14.4 Packing group	III
14.5 Environmental hazard	No
14.6 Special precautions for user	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.

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

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

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 | 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

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