

SECTION 1: Identification of the substance/mixture

1.1. Product identifier

Product form	: Substance
Substance name	: Ammonium persulfate
Formula	: $(\text{NH}_4)_2\text{S}_2\text{O}_8$
Molecular weight	: 228.20 g/mol
CAS No.	: 7727-54-0
Product code	: LW-(NH4)2S2O8
Synonyms	: Ammonium peroxodisulfate

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

Use of the substance/mixture	: Laboratory chemicals, Synthesis of substances
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1.3. Emergency telephone number

Emergency number	: 1.800.424.9300 (USA) +1.703.527.3887 (INT)
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SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Oxidizing solids (Category 3), H272
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Respiratory sensitization (Category 1), H334
Skin sensitization (Category 1), H317
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2. GHS Label elements, including precautionary statements

Pictogram	: 
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Signal word	: Danger
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Hazard statement(s)

- H272 : May intensify fire; oxidizer.
- H302 + H312 : Harmful if swallowed or in contact with skin
- 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.
- H412 : Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

- P210 : Keep away from heat.
- P220 : Keep/Store away from clothing/ combustible materials.
- P221 : Take any precaution to avoid mixing with combustibles.
- P261 : Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- P264 : Wash skin thoroughly after handling.
- P270 : Do not eat, drink or smoke when using this product.
- P271 : Use only outdoors or in a well-ventilated area.
- P272 : Contaminated work clothing should not be allowed out of the workplace.
- P273 : Avoid release to the environment.
- P280 : Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P285 : In case of inadequate ventilation wear respiratory protection.
- P301 + P312 : IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
- P302 + P352 : IF ON SKIN: Wash with plenty of soap and water.
- P304 + P340 : IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
- P322 : Specific measures (see supplemental first aid instructions on this label).
- P330 : Rinse mouth.

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P333 + P313	: If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	: If eye irritation persists: Get medical advice/ attention.
P342 + P311	: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P362	: Take off contaminated clothing and wash before reuse.
P370 + P378	: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	: Store in a well-ventilated place. Keep container tightly closed.
P405	: Store locked up.
P501	: Dispose of contents/ container to an approved waste disposal plant.

2.3. Hazards not otherwise classified (HNOC) or not covered by GHS

none

SECTION 3: Composition/information on ingredients

3.1. Substances

Formula	: $(\text{NH}_4)_2\text{S}_2\text{O}_8$
Synonyms	: Ammonium peroxodisulfate
Molecular Weight	: 228.20 g/mol
CAS-No.	: 7727-54-0

Hazardous components

Component	Classification	Concentration
Ammonium Phosphate	Ox. Sol. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Resp. Sens. 1; Skin Sens. 1; STOT SE 3; Aquatic Acute 3; H272, H302, H315, H317, H319, H334, H335, H402	90 - 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: Description of first aid measures

4.1. Description of first aid measures

General advice	: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
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| First-aid measures after inhalation | : | If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. |
| First-aid measures after skin contact | : | Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician. |
| First-aid measures after eye contact | : | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. |
| First-aid measures after ingestion | : | Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. |

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3. Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

nitrogen oxides (NO_x), Sulphur oxides

Container explosion may occur under fire conditions.

5.3. Advice for firefighters

Wear self-contained breathing apparatus for fire-fighting if necessary.

5.4. More Information

May intensify fire; oxidizer. Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

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Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition – No smoking. Keep away from heat and sources of ignition.

For precautions see section 2.2.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Moisture sensitive. Keep in a dry place.

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Ammonium Persulfate	7727-54-0	TWA	0.1 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		Remarks	Skin irritation varies	

8.2. Exposure controls

Appropriate engineering controls : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3. Personal protective equipment

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Eye protection : Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin Protection : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)
data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body protection : Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection : Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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Environmental exposure controls : Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance : Form: powder
Color: white

Odor : No data available

Odor Threshold : No data available

pH : 1.0 - 2 at 228 g/l at 25 °C (77 °F)

Melting point/freezing point : No data available

Initial boiling point and boiling range : No data available

Flash point : No data available

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper/lower flammability or explosive limits : No data available

Vapor pressure : No data available

Vapor density : 7.88 - (Air = 1.0)

Relative density : 1.980 g/cm³

Water solubility : 228 g/l at 20 °C (68 °F) - completely soluble

Partition coefficient: n-octanol/water : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity : No data available

Explosive properties : No data available

Oxidizing properties : The substance or mixture is classified as oxidizing with the category 3.

9.2. Other safety information

Bulk density : 900 kg/m³

Relative vapor density : 7.88 - (Air = 1.0)

SECTION 10: Stability and reactivity

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10.1. Reactivity

No data available

10.2. Chemical stability

May decompose on exposure to moist air or water.

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

no data available

10.5. Incompatible materials

Strong reducing agents, Organic materials, Powdered metals

10.6. Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: LD50 Oral - rat - 689 mg/kg Inhalation: no data available LD50 Dermal - rat - > 2,000 mg/kg no data available
Skin corrosion/irritation	: Skin - rabbit Result: No skin irritation
Serious eye damage/irritation	: Eyes - rabbit Result: No eye irritation Eyes - rabbit Result: Mild eye irritation (OECD Test Guideline 405)
Respiratory or skin sensitization	: - guinea pig Result: Causes sensitisation. (OECD Test Guideline 406)
Germ cell mutagenicity	: no data available

Carcinogenicity

Human carcinogen. May cause cancer by inhalation.

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IARC:	: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity	: no data available
Specific target organ toxicity (single exposure)	: May cause respiratory irritation.
Specific target organ toxicity (repeated exposure)	: Inhalation - Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	: No data available
Additional Information	: RTECS: SE0350000 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish	: LC50 - Oncorhynchus mykiss (rainbow trout) - 76 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 - Daphnia magna (Water flea) - 120 mg/l - 48 h

12.2. Persistence and degradability : No data available

12.3. Bioaccumulative potential : No data available

12.3. Mobility in soil : No data available

12.4. Results of PBT and vPvB assessment : PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6. Other adverse effects : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated Packaging	: Dispose of as unused product.

SECTION 14: Transport information

DOT (US)

UN number	: 1444
Class	: 5.1
Packing group	: III
Proper shipping name	: Ammonium persulfate
Reportable Quantity (RQ)	: no data available
Marine pollutant	: No
Poison Inhalation Hazard	: No

IMDG

UN number	: 1444
Class	: 5.1
Packing group	: III
EMS-No	F-A, S-F
Proper shipping name	: Ammonium persulfate
Marine pollutant	: No

IATA

UN number	: 1444
Class	: 5.1
Packing group	: III
Proper shipping name	: Ammonium persulfate

SECTION 15: Regulatory information

SARA 302 Components

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No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

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	7727-54-0	2007-03-01

SARA 311/312 Hazards

Reactivity Hazard, Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Ammonium Persulfate	CAS-No.	Revision Date
	7727-54-0	2007-03-01

New Jersey Right To Know Components

Ammonium Persulfate	CAS-No.	Revision Date
	7727-54-0	2007-03-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	: Acute toxicity
Aquatic Acute	: Acute aquatic toxicity
Eye Irrit.	: Eye irritation
H272	: May intensify fire; oxidizer.
H302	: Harmful if swallowed.
H312	: Harmful in contact with skin.
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.
H402	: Harmful to aquatic life.

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H412 : Harmful to aquatic life with long lasting effects.

HMIS Rating

Health Hazard : 2

Chronic Health Hazard : *

Flammability : 0

Physical Hazard : 1

NFPA Rating

Health hazard : 2

Fire Hazard : 0

Reactivity Hazard : 1

Further Information

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