

SAFETY DATA SHEET AMMONIUM PERSULFATE

SDS # : 7727-54-0-US
Revision date: 2015-07-07
Format: NA
Version 1.01



1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name AMMONIUM PERSULFATE

Other means of identification

CAS-No 7727-54-0
Synonyms Ammonium Peroxydisulfate; Diammonium Peroxydisulphate; Peroxydisulfuric acid, diammonium salt; Peroxydisulfuric acid, ammonium salt

Recommended use of the chemical and restrictions on use

Recommended Use: Polymerization initiator; Etchant and cleaner for printed circuit boards; Hair bleaching formulations; Secondary oil recovery; Oxidizing agent for a variety of organic reactions

Restrictions on Use: No uses to be advised against were identified.

Manufacturer/Supplier

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

Emergency telephone number

For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)
1 303/ 389-1409 (Medical - U.S. - Call Collect)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).


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

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Danger

Hazard Statements
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 - May cause respiratory irritation
H320 - Causes eye irritation
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H302 - Harmful if swallowed
H272 - May intensify fire; oxidizer



Precautionary Statements - Prevention

- P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
- P285 - In case of inadequate ventilation wear respiratory protection
- P271 - Use only outdoors or in a well-ventilated area
- P280 - Wear protective gloves/ protective clothing
- P264 - Wash face, hands and any exposed skin thoroughly after handling
- P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
- P220 - Keep/Store away from clothing/combustible materials
- P221 - Take any precaution to avoid mixing with combustibles

Precautionary Statements - Response

- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P337 + P313 - If eye irritation persists: Get medical advice/ attention
- P302 + P352 - IF ON SKIN: Wash with plenty of water.
- P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention
- P304 + P341 - IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing
- P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor
- P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
- P330 - Rinse mouth
- P370 + P378 - In case of fire: Use water for extinction

Precautionary Statements - Storage

- P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Hazards not otherwise classified (HNOC)

No hazards not otherwise classified were identified.

Other Information Risk of decomposition by heat or by contact with incompatible materials

Unknown acute toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula H₈N₂O₈S₂ and (NH₄)₂ S₂ O₈

Chemical name	CAS-No	Weight %
Ammonium Persulfate	7727-54-0	>98

Synonyms are provided in Section 1.

4. FIRST AID MEASURES

General Advice	Remove from exposure, lie down. Show this material safety data sheet to the doctor in attendance.
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.
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.
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.
Most important symptoms and effects, both acute and delayed	Itching; Redness; Coughing and/ or wheezing
Indication of immediate medical attention and special treatment needed, if necessary	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Water. Cool containers with flooding quantities of water until well after fire is out.
Unsuitable extinguishing media	Do not use carbon dioxide or other gas filled fire extinguishers; they will have little effect on decomposing persulfate.
Specific Hazards Arising from the Chemical	Decomposes under fire conditions to release oxygen that intensifies the fire.
Explosion data	
Sensitivity to Mechanical Impact	Not sensitive.
Sensitivity to Static Discharge	Not sensitive.
Protective equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Keep off any unprotected persons. Avoid contact with the skin and the eyes. Avoid breathing dust. Wear personal protective equipment.
Other	Never add other substances or combustible waste to product residues.
Environmental Precautions	Knock down dust with water spray. Avoid penetration into waterways, sewers, soil or groundwater. Local authorities should be advised if significant spillages cannot be contained.

AMMONIUM PERSULFATE

SDS #: 7727-54-0-US
Revision date: 2015-07-07
Version 1.01

Methods for Containment Vacuum, shovel or pump waste into a drum and label contents for disposal. Avoid dust formation. Store in closed container.

Methods for cleaning up Clean up spill area and treat as special waste. Dispose of waste as indicated in Section 13.

7. HANDLING AND STORAGE

Handling Wear personal protective equipment. Avoid breathing dust. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Avoid contact with skin and eyes. Remove and wash contaminated clothing before re-use.

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.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Ammonium Persulfate 7727-54-0	TWA: 0.1 mg/m ³	-	-	-
Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Ammonium Persulfate 7727-54-0	TWA: 0.1 mg/m ³	-	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³

Appropriate engineering controls

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

Individual protection measures, such as personal protective equipment

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

Skin and Body Protection Wear long-sleeved shirt, long pants, socks, and shoes.

Hand Protection Protective gloves: Neoprene gloves, Polyvinylchloride, Natural Rubber.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn: particulate filtering facepiece respirators.

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.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance Crystalline solid
Physical State Solid
Color White

AMMONIUM PERSULFATE

SDS # : 7727-54-0-US
Revision date: 2015-07-07
Version 1.01

Odor	odorless
Odor threshold	Not applicable
pH	5.2 (1% solution)
Melting point/freezing point	120 °C (Decomposes)
Boiling Point/Range	Decomposes upon heating
Flash point	Not flammable
Evaporation Rate	No information available
Flammability (solid, gas)	Not flammable
Flammability Limit in Air	Not applicable
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	1.47E-23 mm Hg at 25°C
Vapor density	No information available
Density	1.98 g/cm ³ (crystal density)
Specific gravity	No information available
Water solubility	600 g/l @ 25 °C
Solubility in other solvents	No information available
Partition coefficient	No information available (inorganic)
Autoignition temperature	No information available No evidence of combustion up to 600 °C
Decomposition temperature	> 100 °C (assume)
Viscosity, kinematic	No information available (Solid)
Viscosity, dynamic	No information available
Explosive properties	Not explosive
Oxidizing properties	oxidizer
Molecular weight	228.2
Bulk density	1.05 (loose)

10. STABILITY AND REACTIVITY

Reactivity	Strong oxidizer.
Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	Use of persulfates in chemical reactions requires appropriate precautions and design considerations for pressure and thermal relief. Decomposing persulfates will evolve large volumes of gas and/or vapor, can accelerate exponentially with heat generation, and create significant and hazardous pressures if contained and not properly controlled or mitigated. Use with alcohols in the presence of water has been demonstrated to generate conditions that require rigorous adherence to process safety methods and standards to prevent escalation to an uncontrolled reaction.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Heat (decomposes at 275 °C); Moisture
Incompatible materials	Acids, Bases, Halides, Oxidizing agents, Strong reducing agents, Combustible materials.
Hazardous Decomposition Products	Oxygen which supports combustion; Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Product Information

Unknown acute toxicity	0% of the mixture consists of ingredient(s) of unknown toxicity
LD50 Oral	740 mg/kg (rat) (Ammonium Persulfate)
LD50 Dermal	> 2000 mg/kg (rat) (Ammonium Persulfate)
LC50 Inhalation	> 2.95 mg/L (rat) (4-hr) (Ammonium Persulfate)
Serious eye damage/eye irritation	Irritating to eyes.
Skin corrosion/irritation	Minimally irritating.

AMMONIUM PERSULFATE

SDS #: 7727-54-0-US
Revision date: 2015-07-07
Version 1.01

Sensitization Sensitizing to skin and respiratory system.

Information on toxicological effects

Symptoms Symptoms of allergic reaction may include rash, itching, swelling and trouble breathing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity Did not show carcinogenic effects in animal experiments.

Mutagenicity In vivo tests did not show mutagenic effects.

Reproductive toxicity This product is not recognized as reprotox by Research Agencies.

STOT - single exposure May cause respiratory irritation.
STOT - repeated exposure Not classified.
Subchronic toxicity Oral (NOAEL) = 41.1 mg/kg bw (Ammonium Persulfate)
Inhalation (NOAEC) = 10.3 mg/m³ (Ammonium Persulfate)
Dermal: No data available

Target organ effects Eyes, Skin, Respiratory System.

Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects

Ammonium Persulfate (7727-54-0)				
Active Ingredient(s)	Duration	Species	Value	Units
Ammonium Persulfate	96 h LC50	Onchorhyncus mykiss	76.3	mg/L
Ammonium Persulfate	48 h EC50	Water flea	120	mg/L
Ammonium Persulfate	72 h EC50	Marine algae (Phaeodactylum tricornutum)	136	mg/L
Ammonium Persulfate	96 h LC50	Turbot (Scophthalmus maximus)	107.6	mg/L
Ammonium Persulfate	18 h EC10	Pseudonomas putida	36	mg/L
Ammonium Persulfate	5 d	Abra Alba	11	mg/L
Ammonium Persulfate	96 h LC50	Grass shrimp	391	mg/L
Ammonium Persulfate	24 h EC50	Daphnia magna	635.7	mg/L

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to Microorganisms	Toxicity to daphnia and other aquatic invertebrates
Ammonium Persulfate		96 h LC50: = 323 mg/L (Poecilia reticulata) 96 h LC50: = 103 mg/L (Lepomis macrochirus) static 96 h LC50: = 76.3 mg/L (Oncorhynchus mykiss) static		48 h EC50: = 120 mg/L (Daphnia magna)

AMMONIUM PERSULFATE

SDS #: 7727-54-0-US
Revision date: 2015-07-07
Version 1.01

Persistence and degradability	Biodegradability does not pertain to inorganic substances.
Bioaccumulation	Does not bioaccumulate.
Mobility	Dissociates into ions.
Other Adverse Effects	None known.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods	This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.
US EPA Waste Number	D001
Contaminated Packaging	Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

DOT

UN/ID no	1444
Proper Shipping Name	AMMONIUM PERSULFATE
Hazard class	5.1
Packing Group	III

TDG

UN/ID no	1444
Proper Shipping Name	AMMONIUM PERSULFATE
Hazard class	5.1
Packing Group	III

ICAO/IATA

UN/ID no	1444
Proper Shipping Name	AMMONIUM PERSULFATE
Hazard class	5.1
Packing Group	III

IMDG/IMO

UN/ID no	1444
Proper Shipping Name	AMMONIUM PERSULFATE
Hazard class	5.1
Packing Group	III

ADR/RID-Labels 5.1

ADR/RID

UN/ID no	1444
Proper Shipping Name	AMMONIUM PERSULFATE
Hazard class	5.1
Packing Group	III

ADN

Proper Shipping Name	AMMONIUM PERSULFATE
Hazard class	5.1
Packing Group	III

OTHER INFORMATION Protect from physical damage. Do not store near acids, moisture or heat.

15. REGULATORY INFORMATION

U.S. Federal Regulations

AMMONIUM PERSULFATE

SDS #: 7727-54-0-US
Revision date: 2015-07-07
Version 1.01

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic health hazard	NO
Fire hazard	Yes
Sudden release of pressure hazard	NO
Reactive Hazard	NO

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

International Inventories

Component	TSCA (United States)	DSL (Canada)	EINECS/EL INCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)	NZIoC (New Zealand)
Ammonium Persulfate 7727-54-0 (>98)	X	X	X	X	X	X	X	X	X

CANADA

WHMIS Statement

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

C - Oxidizing materials
D2A - Very toxic materials
D2B - Toxic materials



16. OTHER INFORMATION

NFPA	Health Hazards 1	Flammability 0	Stability 1	Special Hazards OX
HMIS	Health Hazards 1	Flammability 0	Physical hazard 1	Special precautions J

NFPA/HMIS Ratings Legend

Special Hazards: OX = Oxidizer
Protection=J (Safety goggles, gloves, apron, combination dust and vapor respirator)

Revision date:
Revision note

2015-07-07
Initial Release

Disclaimer

PeroxyChem believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF

AMMONIUM PERSULFATE

SDS # : 7727-54-0-US

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Prepared By:

PeroxyChem

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End of Safety Data Sheet