

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 1 of 12
Version: 2.0

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ammonium persulfate
CAS-No. : 7727-54-0
Chemical nature : Persulfate, Solid

Manufacturer or supplier's details

Company : Dalian Hefu Trading Co., Ltd.
Address : Room 1003 Yihua Building, No. 215 Huanghai Xisi Road, Dalian
F.T.Z., Liaoning, China
Telephone : +86 0411 39552835
Emergency telephone number : +86 0411 39552835
E-mail address : great@dlwawoo.com

Recommended use of the chemical and restrictions on use

Recommended use : Oxidizing agents
polymerization initiators

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance : crystalline
Colour : white
Odour : not significant

May intensify fire; oxidizer. Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.

GHS Classification

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

GHS Label element

Hazard pictograms :



Signal word : Danger

Hazard statements : 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.

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 2 of 12
Version: 2.0

Precautionary statements : **Prevention:**

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/ vapours/ 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.
P280 Wear protective gloves/ eye protection/ face protection.
P284 Wear respiratory protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
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.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Physical and chemical hazards

May intensify fire; oxidizer.

Health hazards

Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause respiratory irritation.

Environmental hazards

Not classified based on available information.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 3 of 12
Version: 2.0

Hazardous components

Chemical Name	CAS-No.	Concentration (% w/w)
Ammonium persulfate	7775-54-0	>= 98.5 - <= 100

4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
Symptoms of poisoning may appear several hours later.
Call a physician immediately.
- If inhaled : Call a physician or poison control centre immediately.
If unconscious place in recovery position and seek medical advice.
Keep respiratory tract clear.
If breathed in, move person into fresh air.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Wash contaminated clothing before re-use.
If on skin, rinse well with water.
If on clothes, remove clothes.
If symptoms persist, call a physician.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Call a physician immediately.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed.
Cause skin irritation.
May cause an allergic skin reaction.
Cause serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing.
- Notes to physician : Treat symptomatically and supportively.

5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Foam
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire-fighting : Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite.

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 4 of 12
Version: 2.0

Cool closed containers exposed to fire with water spray.

Specific extinguishing methods : 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.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Do not use a solid water stream as it may scatter and spread fire.
Remove undamaged containers from fire area if it is safe to do so.
Use water spray to cool unopened containers.
Suppress (knock down) gases/vapours/mists with a water spray jet.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.
Ensure adequate ventilation.
Remove all sources of ignition.
Follow safe handling advice and personal protective equipment recommendations.
Never return spills in original containers for re-use.
Treat recovered material as described in the section "Disposal considerations".

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Contact with incompatible substances can cause decomposition at or below SADT.
Clear spills immediately.
Suppress (knock down) gases/vapours/mists with a water spray jet.
To clean the floor and all objects contaminated by this material, use plenty of water.
Soak up with inert absorbent material.
Isolate waste and do not reuse.
Non-sparking tools should be used.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

Prevention of secondary hazards : Never return spills in original containers for re-use.
Treat recovered material as described in the section "Disposal considerations".

7. HANDLING AND STORAGE

Handling

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 5 of 12
Version: 2.0

- Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from combustible material.
- Advice on safe handling : Do not swallow.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Take precautionary measures against static discharges.
- Never return any product to the container from which it was originally removed.
Provide sufficient air exchange and/or exhaust in work rooms.
Avoid confinement.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Smoking, eating and drinking should be prohibited in the application area.
Wash thoroughly after handling.
For personal protection see section 8.
Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Protect from contamination.
Protect from moisture.
- Avoidance of contact : Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

Storage

- Conditions for safe storage : Avoid impurities (e.g. rust, dust, ash), risk of decomposition.
Electrical installations / working materials must comply with the technological safety standards.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Store in original container.
Keep containers tightly closed in a cool, well-ventilated place.
Keep in a dry place.
Store in accordance with the particular national regulations.
- Materials to avoid : Keep away from strong acids, bases, heavy metal salts and other reducing substances.
- Recommended storage temperature : < 30 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ammonium persulfate	7727-54-0	TWA	0.1 mg/m ³ (Persulfate)	ACGIH

- Engineering measures : Minimize workplace exposure concentrations.

Personal protective equipment

- Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 6 of 12
Version: 2.0

- Filter type : Filter type P
- Eye/face protection : Tightly fitting safety goggles
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.
Ensure that eyewash stations and safety showers are close to the workstation location.
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
- Hand protection
- Material : butyl-rubber
- Break through time : ≥ 480 min
- Glove thickness : 0.5 mm
- Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
- Hygiene measures : Keep away from food and drink.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : crystalline
- Colour : white
- Odour : not significant
- Odour Threshold : No data available
- pH : 4, Concentration: ca. 10 g/l
- Melting point/freezing point : Decomposition: Decomposes below the melting point.
- Initial boiling point and boiling range : Not applicable
- Flash point : Not applicable
- Evaporation rate : Not applicable
- Flammability (solid, gas) : Not expected to form explosive dust-air mixtures.
- Upper explosion limit : No data available

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 7 of 12
Version: 2.0

Lower explosion limit	:	No data available
Vapour pressure	:	< 0.001 hPa (25 °C)
Bulk density	:	1,100 kg/m ³ (20 °C)
Solubility(ies)	:	
Water solubility	:	850 g/l (25 °C) soluble
Partition coefficient: noctanol/water	:	Not applicable
Viscosity	:	
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is classified as oxidizing with the category 3.
Self-Accelerating decomposition temperature (SADT)	:	130 °C Method: UN-Test H.4 SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.

10. STABILITY AND REACTIVITY

Reactivity	:	Stable under recommended storage conditions.
Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Avoid moisture. Even small amounts of moisture or impurities can noticeably reduce the self-accelerating decomposition temperature (SADT).
Conditions to avoid	:	Contact with incompatible substances can cause decomposition at or below SADT. Even small amounts of moisture or impurities can noticeably reduce the self-accelerating decomposition temperature (SADT).
Incompatible materials	:	Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents.
Hazardous decomposition products	:	Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition.

11. TOXICOLOGICAL INFORMATION

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 8 of 12
Version: 2.0

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity : LD50 (Rat): 742 mg/kg
Method: OECD Test Guideline 401

Components:

Ammonium persulfate:

Acute oral toxicity : LD50 (Rat, male): 742 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is moderately toxic after single ingestion.
Remarks: Based on test data

Acute inhalation toxicity : LC50 (Rat): > 5.1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity.
Remarks: Expert judgement

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity.
Remarks: Expert judgement

Skin corrosion/irritation

Causes skin irritation.

Product:

Remarks: May cause skin irritation and/or dermatitis.

Components:

Ammonium persulfate:

Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Remarks: May cause irreversible eye damage.

Components:

Ammonium persulfate:

Species: Rabbit
Result: Irritating to eyes.
Method: OECD Test Guideline 405

Respiratory or skin sensitization

Skin sensitization: May cause an allergic skin reaction.

Respiratory sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Product:

Remarks: Causes sensitization.

Components:

Ammonium persulfate:

Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitization by skin contact.

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 9 of 12
Version: 2.0

Exposure routes: inhalation (dust/mist/fume)
Result: May cause sensitization by inhalation.

Germ cell mutagenicity

Not classified based on available information.

Components:

Ammonium persulfate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Species: Mouse
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

Not classified based on available information.

Components:

Ammonium persulfate:

Species: Mouse
Application Route: Skin contact
Exposure time: 52 weeks
Method: OECD Test Guideline 451
Result: negative

Reproductive toxicity

Not classified based on available information.

Components:

Ammonium persulfate:

Effects on fertility : Species: Rat
Application Route: Ingestion
General Toxicity - Parent: No observed adverse effect level: \geq 250 mg/kg body weight
General Toxicity F1: No observed adverse effect level: \geq 250 mg/kg body weight
Method: OECD Test Guideline 421

STOT - single exposure

May cause respiratory irritation.

Components:

Ammonium persulfate:

Assessment: May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

Ammonium persulfate:

Species: Rat
NOAEL: 1,000 mg/kg
LOAEL: 3,000 mg/kg
Application Route: Ingestion
Exposure time: 90 d
Method: OECD Test Guideline 408

Aspiration toxicity

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 10 of 12
Version: 2.0

Not classified based on available information.

Further information

Product:

Remarks: No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Ammonium persulfate:

- Toxicity to fish : LC50 (Scophthalmus maximus (turbot)): 107.6 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 120 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Phaeodactylum): 320 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- NOEC (Phaeodactylum): 32 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- Toxicity to bacteria : EC10 (Pseudomonas putida): 36 mg/l
Exposure time: 18 h

Persistence and degradability

No data available

Bioaccumulative potential

Components:

Ammonium persulfate:

Partition coefficient: noctanol/water : Remarks: Not applicable

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of wastes in an approved waste disposal facility.
- Contaminated packaging : Empty remaining contents. Dispose of as unused product.

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 11 of 12
Version: 2.0

Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.
Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

International Regulation

UNRTDG

UN number : UN 1444
Proper shipping name : AMMONIUM PERSULFATE
Class : 5.1
Packing group : III
Labels : 5.1

IATA-DGR

UN/ID No. : UN 1444
Proper shipping name : Ammonium persulfate
Class : 5.1
Packing group : III
Labels : Oxidizer
Packing instruction (cargo aircraft) : 563
Packing instruction (passenger aircraft) : 559

IMDG-Code

UN number : UN 1444
Proper shipping name : AMMONIUM PERSULFATE
Class : 5.1
Packing group : III
Labels : 5.1
EmS Code : F-A, S-Q
Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

GB 6944/12268

UN number : UN 1444
Proper shipping name : AMMONIUM PERSULFATE
Class : 5.1
Packing group : III
Labels : 5.1

15. REGULATORY INFORMATION

National regulatory information

Law on the Prevention and Control of Occupational Diseases

The components of this product are reported in the following inventories:

CH INV (CH) : On the inventory, or in compliance with the inventory

SAFETY DATA SHEET

Print Date: 2017-8-28
Product Name: Ammonium persulfate

Revision Date: 2017-8-28

Page: 12 of 12
Version: 2.0

TSCA (US)	:	On TSCA Inventory
DSL (CA)	:	All components of this product are on the Canadian DSL
AICS (AU)	:	On the inventory, or in compliance with the inventory
NZIoC (NZ)	:	On the inventory, or in compliance with the inventory
ENCS (JP)	:	On the inventory, or in compliance with the inventory
ISHL (JP)	:	On the inventory, or in compliance with the inventory
KECI (KR)	:	On the inventory, or in compliance with the inventory
PICCS (PH)	:	On the inventory, or in compliance with the inventory
IECSC (CN)	:	On the inventory, or in compliance with the inventor

16. OTHER INFORMATION

Full text of other abbreviations

(Q)SAR - (Quantitative) Structure Activity Relationship; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; OECD - Organization for Economic Cooperation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TDG - Transportation of Dangerous Goods; UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.