

Ammonium Persulfate

Version number: GHS 2.0
 Replaces version of: 2015-12-15 (A0486 1)

Revision: 2018-10-11

SECTION 1: Identification

1.1 Product identifier

Name	Ammonium Persulfate
Product number	A0486

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

Relevant identified uses	General use
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1.3 Details of the supplier of the safety data sheet

Teknova
 2290 Bert Dr.
 Hollister California 95023
 United States

Telephone: 831-637-1100
 Telefax: 831-637-2355
 e-mail: info@teknova.com
 Website: www.teknova.com

1.4 Emergency telephone number

CHEM TREC Emergency Phone Number	(800)-424-9300
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SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Section	Hazard class	Category	Hazard class and category	Hazard statement
A.1O	acute toxicity (oral)	4	Acute Tox. 4	H302
A.1I	acute toxicity (inhal.)	4	Acute Tox. 4	H332
A.2	skin corrosion/irritation	2	Skin Irrit. 2	H315
A.3	serious eye damage/eye irritation	2	Eye Irrit. 2	H319
A.4R	respiratory sensitization	1	Resp. Sens. 1	H334
A.4S	skin sensitization	1	Skin Sens. 1	H317
A.8R	specific target organ toxicity - single exposure (respiratory tract irritation)	3	STOT SE 3	H335
B.14	oxidizing solid	3	Ox. Sol. 3	H272

For full text of abbreviations: see SECTION 16.

2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

- Signal word danger

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- Pictograms

GHS03, GHS07, GHS08

**- Hazard statements**

H272	May intensify fire; oxidizer.
H302+H332	Harmful if swallowed or if inhaled.
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.

- Precautionary statements

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.
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 must not be allowed out of the workplace.
P280	Wear protective gloves/eye protection/face protection.
P285	In case of inadequate ventilation wear respiratory protection.
P301+P312	If swallowed: Call a poison center/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.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P330	Rinse mouth.
P342+P311	If experiencing respiratory symptoms: Call a poison center/doctor.
P362	Take off contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher to extinguish.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to industrial combustion plant.

- Hazardous ingredients for labelling

Ammonium Persulfate

2.3 Other hazards**Hazards not otherwise classified**

May be harmful in contact with skin (GHS category 5: acutely toxic - dermal).
Harmful to aquatic life (GHS category 3: aquatic toxicity - acute).

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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SECTION 3: Composition/information on ingredients**3.1 Substances**

Not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of substance	CAS No	Wt%	Classification acc. to GHS
Ammonium Persulfate	7727-54-0	100	Acute Tox. 4 / H302 Acute Tox. 4 / H332 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Resp. Sens. 1 / H334 Skin Sens. 1 / H317 STOT SE 3 / H335 Ox. Sol. 3 / H272

For full text of abbreviations: see SECTION 16.

SECTION 4: First-aid measures**4.1 Description of first- aid measures**

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

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SECTION 5: Fire-fighting measures**5.1 Extinguishing media**

Suitable extinguishing media

Water, Foam, ABC-powder

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Oxidizing property.

Hazardous combustion products

Nitrogen oxides (NOx)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains, Take up mechanically

Advices on how to clean up a spill

Take up mechanically.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

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SECTION 7: Handling and storage**7.1 Precautions for safe handling****Recommendations**

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Take precautionary measures against static discharge. Use only in well-ventilated areas. Ground/bond container and receiving equipment.

- Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

- Handling of incompatible substances or mixtures

- Keep away from

Organic absorbing material, Pulp/paper

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities**Managing of associated risks**

- Explosive atmospheres

Removal of dust deposits.

- Flammability hazards

Keep reduction valves/valves and fittings free from oil and grease.

- Incompatible substances or mixtures

Keep/store away from clothing/combustible materials. Take any precaution to avoid mixing with combustibles.

Consideration of other advice

- Ventilation requirements

Keep any substance that emits harmful vapors or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Ceiling-C [ppm]	Ceiling-C [mg/m ³]	Notation	Source
US	particulates not otherwise classified		REL							appxD	NIOSH REL
US	particulates not otherwise classified (PNOC)		PEL	1,766	15					i, dust	29 CFR 1910.1000
US	particulates not otherwise classified (PNOC)		PEL	529.5	5					part ml, r, dust	29 CFR 1910.1000
US	Particulates not otherwise regulated		PEL (CA)		10					dust	Cal/OSHA PEL
US	Particulates not otherwise regulated		PEL (CA)		5					r	Cal/OSHA PEL
US	diammonium peroxodisulfate	7727-54-0	TLV®		0.1					S2O8	ACGIH® 2018

Notation

appxD	see Appendix D - Substances with No Established RELs
Ceiling-C	ceiling value is a limit value above which exposure should not occur
dust	as dust
i	inhalatable fraction
partml	particles/ml
r	respirable fraction
S2O8	calculated as S2O8 ²⁻ (persulfate)
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Ammonium Persulfate	7727-54-0	DNEL	2.06 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Ammonium Persulfate	7727-54-0	DNEL	590 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects
Ammonium Persulfate	7727-54-0	DNEL	2.06 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects
Ammonium Persulfate	7727-54-0	DNEL	18.2 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

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Relevant DNELs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Ammonium Persulfate	7727-54-0	DNEL	400 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects

Relevant PNECs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
Ammonium Persulfate	7727-54-0	PNEC	0.076 mg/l	aquatic organisms	freshwater	short-term (single instance)
Ammonium Persulfate	7727-54-0	PNEC	0.011 mg/l	aquatic organisms	marine water	short-term (single instance)
Ammonium Persulfate	7727-54-0	PNEC	3.6 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Ammonium Persulfate	7727-54-0	PNEC	0.275 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Ammonium Persulfate	7727-54-0	PNEC	0.04 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Ammonium Persulfate	7727-54-0	PNEC	0.015 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

In the case of wanting to use the gloves again, clean them before taking off and air them well.

- Type of material

Nitrile

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.
Wash hands thoroughly after handling.

Respiratory protection

Particulate filter device (EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid (powder)
Color	no data available
Odor	no data available

Other safety parameters

pH (value)	not applicable
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	not applicable
Evaporation rate	not determined
Flammability (solid, gas)	non-combustible
Explosion limits of dust clouds	not determined
Vapor pressure	not determined
Density	not determined
Vapor density	not determined
Relative density	information on this property is not available
Solubility(ies)	not determined

Partition coefficient

- n-octanol/water (log KOW)	this information is not available
Auto-ignition temperature	not determined
Viscosity	not relevant (solid matter)
Explosive properties	none
Oxidizing properties	oxidizer

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9.2	Other information	there is no additional information
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SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials". The mixture contains reactive substance(s). Oxidizing property.

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

Hints to prevent fire or explosion

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.5 Incompatible materials

Oxidizers, Combustible materials

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Acute toxicity

Harmful if swallowed. Harmful if inhaled.

GHS of the United Nations, annex 4: May be harmful in contact with skin.

- Acute toxicity estimate (ATE)

Oral	1,130 mg/kg
Inhalation: dust/mist	2.95 mg/4h

Acute toxicity estimate (ATE) of components of the mixture

Name of substance	CAS No	Exposure route	ATE
Ammonium Persulfate	7727-54-0	oral	1,130 mg/kg
Ammonium Persulfate	7727-54-0	inhalation: dust/mist	≥2.95 mg/4h

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Respiratory or skin sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

The classification criteria for this hazard class are not met.

Specific target organ toxicity - repeated exposure

The classification criteria for this hazard class are not met.

Aspiration hazard

The classification criteria for this hazard class are not met.

SECTION 12: Ecological information

12.1 Toxicity

Harmful to aquatic life.

Aquatic toxicity (acute) of components of the mixture					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Ammonium Persulfate	7727-54-0	LC50	76.3 mg/l	fish	96 h
Ammonium Persulfate	7727-54-0	LC50	103 mg/l	bluegill (<i>Lepomis macrourus</i>)	96 h
Ammonium Persulfate	7727-54-0	LC50	76.3 mg/l	rainbow trout (<i>Oncorhynchus mykiss</i>)	96 h
Ammonium Persulfate	7727-54-0	LC50	323 mg/l	guppy (<i>Poecilia reticulata</i>)	96 h
Ammonium Persulfate	7727-54-0	EC50	120 mg/l	aquatic invertebrates	48 h
Ammonium Persulfate	7727-54-0	EC50	120 mg/l	daphnia magna	48 h

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

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SECTION 13: Disposal considerations**13.1 Waste treatment methods****Sewage disposal-relevant information**

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packages

Only packagings which are approved (e.g. acc. to DOT) may be used. Completely emptied packages can be recycled.
Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number	1444
14.2 UN proper shipping name	Ammonium persulphate
14.3 Transport hazard class(es)	
Class	5.1 (oxidizing substances)
14.4 Packing group	III (substance presenting low danger)
14.5 Environmental hazards	non-environmentally hazardous acc. to the dangerous goods regulations
14.6 Special precautions for user	There is no additional information.
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code	The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations**Transport of dangerous goods by road or rail (49 CFR US DOT)**

Index number	1444
Proper shipping name	Ammonium persulphate
- Particulars in the shipper's declaration	UN1444, Ammonium persulphate, 5.1, III
Class	5.1
Packing group	III
Danger label(s)	5.1



Special provisions (SP) A1, A29, IB8, IP3, T1, TP33

ERG No 140

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International Maritime Dangerous Goods Code (IMDG)

UN number	1444
Proper shipping name	AMMONIUM PERSULPHATE
Class	5.1
Marine pollutant	-
Packing group	III
Danger label(s)	5.1



Special provisions (SP)	-
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg
EmS	F-A, S-Q
Stowage category	A
Segregation group	2 - Ammonium compounds

International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1444
Proper shipping name	Ammonium persulphate
Class	5.1
Packing group	III
Danger label(s)	5.1



Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 kg

SECTION 15: Regulatory information

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

National regulations (United States)

Toxic Substance Control Act (TSCA) all ingredients are listed

Superfund Amendment and Reauthorization Act (SARA TITLE III)

- The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)
 - none of the ingredients are listed
- Specific Toxic Chemical Listings (EPCRA Section 313)
 - none of the ingredients are listed

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Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

- List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)
none of the ingredients are listed

Clean Air Act

- none of the ingredients are listed

New Jersey Worker and Community Right to Know Act

Right to Know Hazardous Substance List			
Name acc. to inventory	CAS No	Remarks	Classifications
AMMONIUM PERSULFATE (PEROXYDISULFURIC ACID ([(HO)S(O)2]2O2), DIAMMONIUM SALT)	7727-54-0		R1

Legend

R1 Reactive - First Degree

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

- none of the ingredients are listed

Industry or sector specific available guidance(s)

NPCA-HMIS® III

Hazardous Materials Identification System. American Coatings Association.

Category	Rating	Description
Chronic	*	chronic (long-term) health effects may result from repeated overexposure
Health	2	temporary or minor injury may occur
Flammability	0	material that will not burn under typical fire conditions
Physical hazard	1	material that is normally stable but can become unstable (self-react) at high temperatures and pressures. Material may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors
Personal protection	-	

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	1	material that must be preheated before ignition can occur
Health	2	material that, under emergency conditions, can cause temporary incapacitation or residual injury
Instability	0	material that is normally stable, even under fire conditions
Special hazard	OX	oxidizer that causes a moderate increase in the burning rate of combustible materials with which it comes into contact

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National inventories

Country	Inventory	Status
US	TSCA	all ingredients are listed

Legend

TSCA Toxic Substance Control Act

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information, including date of preparation or last revision**Key literature references and sources for data**

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Disclaimer

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculation are based on information furnished by the manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstance of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in section 1. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Teknova, inc. Shall not be held liable for any damage resulting from handling or from contact with the above product.

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