SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Ammonium persulfate
Product Number : A3678
Brand : Sigma
Index-No. : 016-060-00-6
CAS-No. : 7727-54-0

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
            3050 SPRUCE ST
            ST. LOUIS MO  63103
            UNITED STATES
Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

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
- 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
- Short-term (acute) aquatic hazard (Category 3), H402

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

2.2 GHS Label elements, including precautionary statements
Signal Word. Danger

Hazard statement(s)
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.
H402. Harmful to aquatic life.

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.
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 must not be allowed out of the workplace.
P273. Avoid release to the environment.
P280. Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330. IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352. IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor 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/ doctor.
P362. Take off contaminated clothing and wash before reuse.
P370 + P378. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
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
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

### Synonyms
- AP
  Ammonium peroxodisulfate
- APS
- PER
  Ammonium peroxydisulfate

### Formula
$(\text{NH}_4)_2\text{S}_2\text{O}_8$

### Molecular weight
228.20 g/mol

### CAS-No.
7727-54-0

### EC-No.
231-786-5

### Index-No.
016-060-00-6

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium peroxydisulfate</td>
<td>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, H319, H334, H317, H335, H402</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

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

### SECTION 4: First aid measures

#### 4.1 Description of first-aid measures

**General advice**
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

**If inhaled**
After inhalation: fresh air. Call in physician.

**In case of skin contact**
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

**In case of eye contact**
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

**If swallowed**
After swallowing: immediately make victim drink water (two glasses at most). 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

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Nitrogen oxides (NOx)
Sulfur oxides
Container explosion may occur under fire conditions.
Not combustible.
Has a fire-promoting effect due to release of oxygen.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
May intensify fire; oxidizer. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.
**Hygiene measures**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

**Storage conditions**
Tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons. Do not store near combustible materials.

Moisture sensitive.

**Storage class**
Storage class (TRGS 510): 5.1B: Oxidizing hazardous materials

### 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

**Ingredients with workplace control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium peroxodisulphate</td>
<td>7727-54-0</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls

**Appropriate engineering controls**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

**Body Protection**
protective clothing

**Respiratory protection**
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains.

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**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

| a) Appearance | Form: powder  
Color: white |
| b) Odor | No data available |
| c) Odor Threshold | No data available |
| d) pH | 1.0 - 2 at 228 g/l at 25 °C (77 °F) |
| e) Melting point/freezing point | Decomposes before melting. |
| f) Initial boiling point and boiling range | Decomposes below the boiling point. |
| g) Flash point | No data available |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | No data available |
| k) Vapor pressure | No data available |
| l) Vapor density | 7.88 - (Air = 1.0) |
| m) Density | 1.980 g/cm³ |
| n) Water solubility | 228 g/l at 20 °C (68 °F) - completely soluble |
| o) Partition coefficient: n-octanol/water | No data available |
| p) Autoignition temperature | No data available |
9.2 Other safety information

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is classified as oxidizing with the category 3.</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>7.88 - (Air = 1.0)</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1 Reactivity
   No data available

10.2 Chemical stability
   The product is chemically stable under standard ambient conditions (room temperature). May decompose on exposure to moist air or water.

10.3 Possibility of hazardous reactions
   No data available

10.4 Conditions to avoid
   No information available

10.5 Incompatible materials
   No data available

10.6 Hazardous decomposition products
   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/eye 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 sensitization.

(OECD Test Guideline 406)

**Germ cell mutagenicity**
No data available

**Carcinogenicity**

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient 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 on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

11.2 **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

12.4 **Mobility in soil**
No data available

12.5 **Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product**
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

**DOT (US)**
UN number: 1444   Class: 5.1   Packing group: III
Proper shipping name: Ammonium persulfate
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

**IMDG**
UN number: 1444   Class: 5.1   Packing group: III
Proper shipping name: AMMONIUM PERSULPHATE
EMS-No: F-A, S-Q

**IATA**
UN number: 1444   Class: 5.1   Packing group: III
Proper shipping name: Ammonium persulphate

SECTION 15: Regulatory information

**SARA 302 Components**
This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**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.
SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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