# Safety Data Sheet

## 1. Chemical product and company identification

**Product name** : Ammonium peroxodisulfate

**SDS code** : A3-02

**Company/undertaking identification** :

HAYASHI PURE CHEMICAL IND.,LTD.
Address : 3-2-12 Uchihiranomachi, Chuo-ku, Osaka, Osaka, Japan
Telephone : 06-6910-7305
E-mail : shiyaku_kikaku@hpc-j.co.jp
URL : https://www.hpc-j.co.jp/

**Emergency number** : 06-6910-7305

**Recommended use** : For research and experimental use only.

**Restrictions on use** : Do not use on a human body or for animal medicines, foods, household products, cosmetics, etc.

## 2. Hazards identification

**GHS classification**

| | | |
|---|---|---|
| Physical hazards | Explosives | No classification |
| | Flammable gases | No classification |
| | Aerosol | No classification |
| | Oxidizing gases | No classification |
| | Gases under pressure | No classification |
| | Flammable liquids | No classification |
| | Flammable solids | No classification |
| | Self-reactive substances and mixtures | No classification |
| | Pyrophoric liquids | No classification |
| | Pyrophoric solids | No classification |
| | Self-heating substances and mixtures | No classification |
| | Substances and mixtures which in contact with water emit flammable gases | No classification |
| | Oxidizing liquids | No classification |
| | Oxidizing solids | Category 3 |
| | Organic peroxides | No classification |
| | Corrosive to metals | classification not possible |
| | Desensitized explosives | classification not possible |
| Health hazards | Acute toxicity (oral) | Category 4 |
| | Acute toxicity (dermal) | No classification |
| | Acute toxicity (inhalation:gas) | No classification |
| | Acute toxicity (inhalation:vapors) | classification not possible |
| | Acute toxicity (inhalation:dust/mist) | classification not possible |
| | Skin corrosion/irritation | Category 2 |
| | Serious eye damage/eye irritation | Category 2B |
| | Respiratory sensitization | Category 1 |
| | Skin sensitization | Category 1 |
| | Germ cell mutagenicity | classification not possible |
| | Carcinogenicity | classification not possible |
| | Reproductive toxicity | classification not possible |
| | Specific target organ toxicity (single exposure) | Category 2 (central nervous system) |

| | | |
|---|---|---|
| | Specific target organ toxicity (single exposure) | Category 3 (Respiratory tract irritation.) |
| | Specific target organ toxicity (repeated exposure) | Category 2 (respiratory system) |
| | Aspiration hazard | classification not possible |
| Environmental hazards | Hazardous to the aquatic environment, short-term (acute) | Category 3 |
| | Hazardous to the aquatic environment, long-term (chronic) | Category 3 |
| | Hazardous to the ozone layer | classification not possible |

Hazard pictograms (GHS JP)

GHS03

GHS07

GHS08

Signal word (GHS JP) : Danger

Hazard statements (GHS JP) :
May intensify fire; oxidizer (H272)
Harmful if swallowed (H302)
Causes skin and eye irritation (H315+H320)
May cause an allergic skin reaction (H317)
May cause an allergy or asthma symptoms or breathing difficulties if inhaled (H334)
May cause respiratory irritation (H335)
May cause damage to organs (central nervous system) (H371)
May cause damage to organs (respiratory system) through prolonged or repeated exposure (H373)
Harmful to aquatic life with long lasting effects (H412)

Precautionary statements (GHS JP)

Prevention :
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. (P210)
Keep away from clothing and other combustible materials. (P220)
Do not breathe dust/fume/gas/mist/vapors/spray. (P260)
Wash hands, forearms and face thoroughly after handling. (P264)
Do not eat, drink or smoke when using this product. (P270)
Use only outdoors or in a well-ventilated area. (P271)
Contaminated work clothing should not be allowed out of the workplace. (P272)
Avoid release to the environment. (P273)
Wear protective gloves/protective clothing/eye protection/face protection. (P280)
[In case of inadequate ventilation] wear respiratory protection. (P284)

Response :
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. (P301+P312)
IF ON SKIN: Wash with plenty of water. (P302+P352)
IF INHALED: Remove person to fresh air and keep comfortable for breathing (P304+P340)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338)
IF exposed or concerned: Call a POISON CENTER or doctor. (P308+P311)
Get medical advice/attention if you feel unwell. (P314)
Rinse mouth. (P330)
If skin irritation or rash occurs: Get medical advice/attention. (P333+P313)
If eye irritation persists: Get medical advice/attention. (P337+P313)
If experiencing respiratory symptoms: Call a POISON CENTER or doctor. (P342+P311)
Take off contaminated clothing and wash it before reuse. (P362+P364)
In case of fire: Use specify appropriate media to extinguish. (P370+P378)

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

Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. (P501)

## 3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Synonyms : Ammonium persulfate

| Name | Concentration or Concentration range | Formula | Kanpo number | | CAS RN |
|---|---|---|---|---|---|
| | | | CSCL no | ISHL no | |
| Ammonium peroxodisulfate | ≧95.0%, ≦100% | (NH4)2S2O8 | (1)-406 | Existing Chemical Substance | 7727-54-0 |

The above concentration or concentration range are not product specification.
All percentages listed in the above concentration or concentration range are wt%, unless otherwise specified.

## 4. First aid measures

**First aid measures**

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
Get immediate medical advice/attention.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing.
Gently wash with plenty of soap and water.
Get immediate medical advice/attention.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Get immediate medical advice/attention.

First-aid measures after ingestion : Rinse mouth.
Get immediate medical advice/attention.

## 5. Fire fighting measures

Suitable extinguishing media : Water spray

Unsuitable extinguishing media : Foam, Dry powder, Do not use a heavy water stream.

Fire hazard : This product is unburnable.
May intensify fire; oxidizer.

Explosion hazard : May induce explosion of containers by heating.

Hazardous decomposition products in case of fire : In case of fire, product may produce irritative or toxic fumes/gases.

Firefighting instructions : If ignited, for the initial fire-fighting, cut off combustion sources, extinguish fire at a stroke using appropriate fire-extinguishers.
In the case of peripheral fire, quickly remove movable containers to safe places.
If unable to be moved containers, sprinkle water to containers and surrounding equipment, etc. to cool.
Even after extinguishing fire, thoroughly cool containers by using plenty of water.

Protection during firefighting : Wear appropriate fire-resistant clothing including self contained-compressed air breathing apparatus.

## 6. Accidental release measures

**Personal Precautions, Protective Equipment and Emergency Procedures**

General measures : Before entering, ventilate the area.
Do not let unauthorized persons come close to the area.
Immediately place the leakage area in isolation, with taking proper distances for all directions.
Wear appropriate personal protective devices to prevent inhalation and contact with eye, skin, and clothing, and never attempt to work on the lee.

**Environmental precautions**

| | | |
|---|---|---|
| Environmental precautions | : | Avoid release to the environment.<br>Prevent entry to sewers and public waters. |

**Methods and Equipment for Containment and Cleaning up**

| | | |
|---|---|---|
| Methods for cleaning up | : | Take care not to generate dust, sweep it up as much as possible, collect it in an empty container that can be sealed, and move it to a safe place.<br>Wash out the spilled area with large amounts of water. |

## 7. Handling and storage

**Handling**

| | | |
|---|---|---|
| Technical measures | : | Work with appropriate personal protective equipment to prevent inhalation or contact to eyes, skin, and clothing.<br>Handle with care to prevent leakage, overflowing, or scattering, minimize generation of mist or vapor, and thoroughly ventilate. |
| Precautions for safe handling | : | Do not eat, drink or smoke when using this product.<br>Thoroughly wash your hands and gargle after handling.<br>Ensure good ventilation of the work station.<br>Do not contact, breathe or swallow. |
| Prevents handling of incompatible substances or mixtures | : | Avoid prolonged or repeated exposure. |

**Storage**

| | | |
|---|---|---|
| Storage conditions | : | Store locked up.<br>Store in a well-ventilated place, away from direct sunlight. Keep container tightly closed and keep away from fire and heat sources. |
| Material used in packaging/containers | : | Airtight container. |
| Technical measures | : | Comply with applicable regulations. |
| Storage temperature | : | Cool and dark place |

## 8. Exposure controls / Personal protection equipment

| | |
|---|---|
| Appropriate engineering controls | : Cover up tightly the generation source at the handling place or install local exhaust equipment or overall ventilation equipment. Install safety showers and eye-fountains near a handling place. Clearly indicate the location. |

**Protective equipment**

| | |
|---|---|
| Respiratory protection | : Dustproof mask |
| Hand protection | : Impervious protective gloves |
| Eye protection | : Protective glasses (general glasses, glasses with side-shields, goggles) |
| Skin and body protection | : Impervious aprons, Impervious work clothing, Impervious long boots |

## 9. Physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Solid |
| Appearance | : | Crystals ～ Crystalline powder |
| Color | : | colorless ～ light yellow |
| Odor | : | Odorless |
| pH | : | Aqueous solution shows a weakly acidic. |
| Melting point | : | No data available |
| Freezing point | : | No data available |
| Boiling point | : | No data available |
| Flash point | : | No data available |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | 120 °C |
| Flammability | : | No data available |
| Vapor pressure | : | No data available |
| Relative density | : | No data available |
| Density | : | 1.98 g/cm³ |
| Relative gas density | : | No data available |

| | | |
|---|---|---|
| Solubility | : | Sparingly soluble in ethanol. Sparingly soluble in diethyl ether.<br>Water: 58.2 g/100ml（20℃） |
| Partition coefficient n-octanol/water (Log Pow) | : | No data available |
| Explosive limits (vol %) | : | No data available |
| Viscosity, kinematic | : | No data available |
| Particle characteristics | : | No data available |

## 10. Stability and reactivity

| | | |
|---|---|---|
| Reactivity | : | No data available |
| Chemical stability | : | Stable under normal handling conditions. |
| Possibility of hazardous reactions | : | Reacts with combustible substances and reducing substances. Produces toxic and corrosive fumes containing ammonia, nitrogen oxides and sulfur oxides. In solution, it reacts violently with iron, aluminium powder and silver salts. |
| Conditions to avoid | : | Sunlight, moisture, heat. Contact with combustible substances, reducing substances and metal powder. |
| Incompatible materials | : | Combustible substances, Reducing substances, Metal powder |
| Hazardous decomposition products | : | Ammonia, Nitrogen oxides, Sulfur oxides |

## 11. Toxicological information

The information in this section is based on the "GHS Classification Results" by NITE.

| **Ammonium peroxodisulfate** | |
|---|---|
| Acute toxicity (oral) | Category 4 |
| Acute toxicity (dermal) | No classification |
| Acute toxicity (gas) | No classification |
| Acute toxicity (vapour) | classification not possible |
| Acute toxicity (inhalation:dust/mist) | classification not possible |
| Skin corrosion/irritation | Category 2 |
| Serious eye damage/irritation | Category 2B |
| Respiratory sensitization | Category 1 |
| Skin sensitization | Category 1 |
| Germ cell mutagenicity | classification not possible |
| Carcinogenicity | classification not possible |
| Reproductive toxicity | classification not possible |
| STOT-single exposure | Category 2 Category 3 (Respiratory tract irritation.) |
| STOT-repeated exposure | Category 2 |
| Aspiration hazard | classification not possible |

## 12. Ecological information

The information in this section is based on the "GHS Classification Results" by NITE.

| **Ammonium peroxodisulfate** | |
|---|---|
| Hazardous to Aquatic Environment - Acute Hazard | Category 3 |
| Hazardous to Aquatic Environment - Chronic Hazard | Category 3 |
| Persistence and degradability | No data available |
| Bioaccumulative potential | No data available |
| Mobility in soil | No data available |
| Hazardous to the ozone layer | classification not possible |

## 13. Disposal considerations

| | | |
|---|---|---|
| Ecology - waste materials | : | With the detail information of the waste, subcontract its disposal to a waste disposer authorized by a Prefectural Governor. |

| | | |
|---|---|---|
| Contaminated container and packaging | : | Empty the packaging completely prior to disposal.<br>Empty containers should be taken for recycle, recovery or waste in accordance with local regulation. |

## 14. Transport information

**International Regulations**

**Transport by sea(IMDG)**

| | | |
|---|---|---|
| UN-No. (IMDG) | : | 1444 |
| Proper Shipping Name (IMDG) | : | AMMONIUM PERSULPHATE |
| Packing group (IMDG) | : | III |
| Transport hazard class(es) (IMDG) | : | 5.1 |
| Hazard labels (IMDG) | : | 5.1 |
| Class (IMDG) | : | 5.1 |
| Division (IMDG) | : | 5.1 |
| Limited quantities (IMDG) | : | 5 kg |
| Excepted quantities (IMDG) | : | E1 |
| Packing instructions (IMDG) | : | P002, LP02 |
| IBC packing instructions (IMDG) | : | IBC08 |
| IBC special provisions (IMDG) | : | B3 |
| Tank instructions (IMDG) | : | T1 |
| Tank special provisions (IMDG) | : | TP33 |
| Stowage category (IMDG) | : | A |
| Properties and observations (IMDG) | : | White crystals or powder. Soluble in water.Mixtures with combustible material are sensitive to friction and are liable to ignite. |
| MFAG-No | : | 140 |

**Air transport(IATA)**

| | | |
|---|---|---|
| UN-No. (IATA) | : | 1444 |
| Proper Shipping Name (IATA) | : | Ammonium persulphate |
| Packing group (IATA) | : | III |
| Transport hazard class(es) (IATA) | : | 5.1 |
| Hazard labels (IATA) | : | 5.1 |
| Class (IATA) | : | 5.1 |
| Division (IATA) | : | 5.1 |
| PCA Excepted quantities (IATA) | : | E1 |
| PCA Limited quantities (IATA) | : | Y546 |
| PCA limited quantity max net quantity (IATA) | : | 10kg |
| PCA packing instructions (IATA) | : | 559 |
| PCA max net quantity (IATA) | : | 25kg |
| CAO packing instructions (IATA) | : | 563 |
| CAO max net quantity (IATA) | : | 100kg |
| Special provision (IATA) | : | A803 |
| ERG code (IATA) | : | 5L |
| **Marine pollutant** | : | Not applicable |

**Regulations in Japan**

| | | |
|---|---|---|
| Regulatory information by sea | : | Conform to the provisions of the Ship Safety Law. |
| Regulatory information by air | : | Conform to the provisions of the Civil Aeronautics Law. |
| MFAG-No | : | 140 |
| **Special transport precautions** | : | When transporting, load containers so that they do not tip over, damage, drop or collapse. Make sure there is no leak in containers. |

## 15. Regulatory information

**National law**

| | | |
|---|---|---|
| Industrial Safety and Health Law | : | Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)<br>Dangerous or Harmful Substances for Notification of Chemical Name etc. on SDS (Law Art.57-2, Enforcement Order Art.18-2)<br>Ammonium persulfate<br>Dangerous Substances - Oxidizing Substance (Enforcement Order Attached Table 1 Item 3)<br>Chemical substances that damage the skin, etc. Harmful substances that cause skin irritation (Ordinance on Industrial Safety and Health, Article 594-2, Para.1, list of substances applicable to No. 0704 Item 1, 4 based on July 4, 2023) |

| | | |
|---|---|---|
| Japanese Poisonous and Deleterious Substances Control Law | : | Not applicable |
| Water Pollution Prevention Law | : | Hazardous Substances (Act, Art.2, Enforcement Order Art.2, Ministerial Ordinance to Provide for Effluent Standards, Art.1) |
| Fire Service Law | : | Not applicable |
| Air Pollution Control Law | : | Hazardous Air Pollutants (Central Environment Council Report No. 9) |
| Foreign Exchange and Foreign Trade Control Act | : | Export Trade Control Ordinance appendix 1-16 |
| Ship Safety Act | : | Oxidizing substances and organic peroxides/Oxidizing substances (Dangerous Goods Notification Schedule first second and third Article Dangerous Goods Regulations) |
| Civil Aeronautics Law | : | Oxidizing substances and organic peroxides/Oxidizing substances (Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations) |
| Port Regulation Law | : | Oxidizing substances and organic peroxides/Oxidizing substances (Article 21, Paragraph 2 of Law, Article 12 rule, notice attached table that defines the type of dangerous goods) |
| Japanese Pollutant Release and Transfer Register Law (PRTR Law) | : | Class 1 Designated Chemical Substances (Act Art.2 para.2, Enforcement Order Art.1 Appended Table No.1)<br>Water-soluble salts of peroxodisulfuric acid (100%) |
| Labor Standards Act | : | Chemical Substances Causing Occupational Illnesses (Act Art.75, Para.2, Ordinance Attached Table 1-2, Item 4-1, MHLW Nortification No.36 of 1978) |

## 16. Other information

| | | |
|---|---|---|
| Data sources | : | Handbook of 17423 Chemical Products, The Chemical Daily Co, Ltd.<br>International Chemical Safety Cards.<br>National Institute of Technology and Evaluation (NITE).<br>2020 Emergency Response Guidebook (ERG 2020). |
| Other information | : | The SDS is copyrighted material of Hayashi Pure Chemical Ind, Ltd. This Safety Data Sheet is intended to be provided for business operators who handle chemical substance products of the relevant product and is not intended to assure safety in any way. The Safety Data Sheet does not verify all the information on the applicable chemical substance in the present time. With the recognition in that unknown danger constantly exists in the relevant chemical substance, the product shall be used in the principle of self-responsibility of the user with the highest priority to safety from transport and unpacking to disposal. When the relevant chemical substance is used, the user him/herself shall collect safety information and shall investigate laws and regulations at the place, organizations, countries, etc. where the substance is actually used and give the highest priority to them. The Company shall take no responsibility for investigating state and local regulations and the user shall handle this problem on his/her own responsibility. In the event that SDS in Japanese and SDS translated into other languages exist, the document described in Japanese is prior to all other documents whether or not there is any difference in contents, and documents in other languages shall be references. |