
Safety Data Sheet

1. Chemical product and company identification

Product name : 20% Hydrazine monohydrate

SDS code : J8-12

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

| | | |
|-----------------------|---|--|
| Environmental hazards | Specific target organ toxicity (repeated exposure) | Category 1 (liver, nervous system, digestive tract, kidneys) |
| | Aspiration hazard | classification not possible |
| | Hazardous to the aquatic environment, short-term (acute) | Category 2 |
| | Hazardous to the aquatic environment, long-term (chronic) | Category 2 |
| | Hazardous to the ozone layer | classification not possible |

Hazard pictograms (GHS JP)



GHS05



GHS07



GHS08



GHS09

Signal word (GHS JP)

: Danger

Hazard statements (GHS JP)

: May be corrosive to metals (H290)
 Harmful if swallowed (H302)
 Causes severe skin burns and eye damage (H314)
 May cause an allergic skin reaction (H317)
 Suspected of causing genetic defects (H341)
 May cause cancer (H350)
 Causes damage to organs (central nervous system, liver, kidneys) (H370)
 Causes damage to organs (liver, nervous system, digestive tract, kidneys) through prolonged or repeated exposure (H372)
 Toxic to aquatic life with long lasting effects (H411)

Precautionary statements (GHS JP)

Prevention

: Obtain special instructions before use. (P201)
 Do not handle until all safety precautions have been read and understood. (P202)
 Keep only in original container. (P234)
 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)
 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)

Response

: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. (P301+P312)
 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. (P301+P330+P331)
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. (P303+P361+P353)
 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)
 Immediately call a POISON CENTER or doctor. (P310)
 Get medical advice/attention if you feel unwell. (P314)
 If skin irritation or rash occurs: Get medical advice/attention. (P333+P313)
 Take off contaminated clothing and wash it before reuse. (P362+P364)
 Absorb spillage to prevent material-damage. (P390)
 Collect spillage. (P391)

Storage

: Store locked up. (P405)
 Store in corrosive resistant container with a resistant inner liner. (P406)

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 : Mixture

| Name | Concentration or Concentration range | Formula | Kanpo number | | CAS RN |
|-----------------------|--------------------------------------|---|--------------|-----------------------------|-----------|
| | | | CSCL no | ISHL no | |
| Hydrazine monohydrate | About 20% | N ₂ H ₄ ·H ₂ O | (1)-374 | Existing Chemical Substance | 7803-57-8 |
| Water | About 80% | H ₂ O | - | - | 7732-18-5 |

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 : Do NOT induce vomiting.
Drink plenty of water.
Rinse mouth.
Get immediate medical advice/attention.

5. Fire fighting measures

- Suitable extinguishing media : Water spray, Foam, Dry powder, Carbon dioxide, Sand.
- Unsuitable extinguishing media : Do not use a heavy water stream.
- 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.
Avoid (reject) fire-fighting water to enter environment.
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.
Prevent entry to sewers and public waters.

Methods and Equipment for Containment and Cleaning up

- Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it.
Collect leaking and spilled liquid in sealable containers as far as possible.
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.
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.
Thoroughly wash your hands and gargle after handling.
Ensure good ventilation of the work station.
Do not contact, breathe or swallow.
- Prevents handling of incompatible substances or mixtures : Avoid prolonged or repeated exposure.

Storage

- Storage conditions : Store locked up.
Store in a well-ventilated place, away from direct sunlight. Keep container tightly closed and keep away from fire and heat sources.
Store in corrosive resistant container with a resistant inner liner.
- Material used in packaging/containers : Light shielding airtight container.
- Technical measures : Comply with applicable regulations.
- Storage temperature : Cool and dark place

8. Exposure controls / Personal protection equipment

| Exposure limit values | |
|------------------------|-------------------------|
| Hydrazine monohydrate | |
| Exposure limits (JSOH) | 0.1ppm(0.21mg/m3)(skin) |

- 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 : Gas 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 : Liquid
- Appearance : Liquid
- Color : colorless transparent
- Odor : characteristic odor
- pH : 11.8
- 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 : No data available
- Flammability (solid, gas) : No data available
- Vapor pressure : No data available
- Relative density : No data available

| | |
|---|---------------------------------|
| Density | : 1.01 g/cm ³ (20°C) |
| Relative gas density | : No data available |
| Solubility | : No data available |
| 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 | : When heated, it decomposes to produce irritating and explosive gas. Reacts violently with oxidizing agents. Reacts violently with reducing agents, acids, metals, metal oxides and porous substances to pose a risk of fire and explosion. |
| Conditions to avoid | : Sunlight, heat. Contact with oxidizing agents, reducing agents, acids, metals, metal oxides and porous substances. |
| Incompatible materials | : Oxidizing agents, Reducing agents, Acids, Metals, Metal oxides, Porous substances |
| Hazardous decomposition products | : Nitrogen oxides, Ammonia, Hydrogen |

11. Toxicological information

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

| As a product | |
|---------------------------------------|---|
| Acute toxicity (oral) | Category 4 |
| Acute toxicity (dermal) | classification not possible |
| Acute toxicity (inhalation) | vapors:classification not possible Gases:classification not possible dust, mist:classification not possible |
| Skin corrosion/irritation | Category 1 |
| Serious eye damage/irritation | Category 1 |
| Respiratory sensitization | classification not possible |
| Skin sensitization | Category 1 |
| Germ cell mutagenicity | Category 2 |
| Carcinogenicity | Category 1B |
| Reproductive toxicity | classification not possible |
| STOT-single exposure | Category 1 |
| STOT-repeated exposure | Category 1 |
| Aspiration hazard | classification not possible |
| Hydrazine monohydrate | |
| Acute toxicity (oral) | Category 3 |
| Acute toxicity (dermal) | classification not possible |
| Acute toxicity (gas) | No classification |
| Acute toxicity (vapour) | classification not possible |
| Acute toxicity (inhalation:dust/mist) | classification not possible |
| Skin corrosion/irritation | Category 1 |
| Serious eye damage/irritation | Category 1 |
| Respiratory sensitization | classification not possible |
| Skin sensitization | Category 1 |
| Germ cell mutagenicity | Category 2 |
| Carcinogenicity | Category 1B |
| Reproductive toxicity | classification not possible |
| STOT-single exposure | Category 1 |
| STOT-repeated exposure | Category 1 |
| Aspiration hazard | classification not possible |
| Water | |
| Acute toxicity (oral) | No classification |

| Water | |
|---------------------------------------|-------------------|
| Acute toxicity (dermal) | No classification |
| Acute toxicity (gas) | No classification |
| Acute toxicity (vapour) | No classification |
| Acute toxicity (inhalation:dust/mist) | No classification |
| Skin corrosion/irritation | No classification |
| Serious eye damage/irritation | No classification |
| Respiratory sensitization | No classification |
| Skin sensitization | No classification |
| Germ cell mutagenicity | No classification |
| Carcinogenicity | No classification |
| Reproductive toxicity | No classification |
| STOT-single exposure | No classification |
| STOT-repeated exposure | No classification |
| Aspiration hazard | No classification |

12. Ecological information

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

| As a product | |
|---|-----------------------------|
| Hazardous to the aquatic environment, short-term (acute) | Category 2 |
| Hazardous to the aquatic environment, long-term (chronic) | Category 2 |
| Persistence and degradability | No data available |
| Bioaccumulative potential | No data available |
| Mobility in soil | No data available |
| Ozone | classification not possible |
| Hydrazine monohydrate | |
| Hazardous to Aquatic Environment - Acute Hazard | Category 1 |
| Hazardous to Aquatic Environment - Chronic Hazard | Category 1 |
| Persistence and degradability | No data available |
| Bioaccumulative potential | No data available |
| Mobility in soil | No data available |
| Hazardous to the ozone layer | No data available |
| Water | |
| Hazardous to Aquatic Environment - Acute Hazard | No classification |
| Hazardous to Aquatic Environment - Chronic Hazard | No classification |
| 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.
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) | : 3293 |
| Proper Shipping Name (IMDG) | : HYDRAZINE, AQUEOUS SOLUTION |
| Packing group (IMDG) | : III |
| Transport hazard class(es) (IMDG) | : 6.1 |
| Hazard labels (IMDG) | : 6.1 |
| Class (IMDG) | : 6.1 |
| Division (IMDG) | : 6.1 |
| Special provision (IMDG) | : 223 |
| Packing instructions (IMDG) | : P001, LP01 |
| IBC packing instructions (IMDG) | : IBC03 |
| Tank instructions (IMDG) | : T4 |
| Tank special provisions (IMDG) | : TP1 |
| Stowage category (IMDG) | : A |
| Properties and observations (IMDG) | : Colourless liquid. Reacts violently with acids. Toxic if swallowed, by skin contact or by inhalation. |
| MFAG-No | : 152 |

Air transport(IATA)

| | |
|--|-------------------------------|
| UN-No. (IATA) | : 3293 |
| Proper Shipping Name (IATA) | : Hydrazine, aqueous solution |
| Packing group (IATA) | : III |
| Transport hazard class(es) (IATA) | : 6.1 |
| Hazard labels (IATA) | : 6.1 |
| Class (IATA) | : 6.1 |
| Division (IATA) | : 6.1 |
| PCA Excepted quantities (IATA) | : E1 |
| PCA Limited quantities (IATA) | : Y642 |
| PCA limited quantity max net quantity (IATA) | : 2L |
| PCA packing instructions (IATA) | : 655 |
| PCA max net quantity (IATA) | : 60L |
| CAO packing instructions (IATA) | : 663 |
| CAO max net quantity (IATA) | : 220L |
| Special provision (IATA) | : A3 |
| ERG code (IATA) | : 6L |

Marine pollutant : 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 | : 152 |

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

| | |
|---|---|
| Chemical Substances Control Law | : Priority Assessment Chemical Substances (Law Article 2, Para.5) |
| 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 Item 1, Item 2, Attached Table No.9) Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Item 1, Item 2, Attached Table No.9) Hydrazine monohydrate (Ordinance number : 460) Published Substances of the Guidelines for Preventing the Impairment of Workers' Health (Act, Art.28, Para.3, MHLW Noticed Guideline) Carcinogenic Substances (Ordinance on Industrial Safety and Health, Art.577-2 Para.3, Public Notification No. 371 of Dec 26, 2022) |
| Japanese Poisonous and Deleterious Substances Control Law | : Not applicable |
| Water Pollution Prevention Law | : Designated Chemical Substances (Law Article 2, Paragraph 4, Enforcement Order Article 3-3) |

| | | |
|---|---|--|
| Fire Service Law | : | Designated Combustible Substances - Combustible liquids (Law Art.9-4, Cabinet Order on Hazardous Materials Art.1-12, Attached Table No.4) |
| Foreign Exchange and Foreign Trade Control Act | : | Export Trade Control Ordinance appendix 1-16 |
| Ship Safety Act | : | Toxic and infectious substances/Toxic substances (Dangerous Goods Notification Schedule first second and third Article Dangerous Goods Regulations) |
| Civil Aeronautics Law | : | Toxic and infectious substances/Toxic substances (Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations) |
| Port Regulation Law | : | Toxic and infectious substances/Toxic 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) Hydrazine (20%) |
| Labor Standards Act | : | Chemical Substances Causing Occupational Illnesses (Act Art.75, Para.2, Ordinance Attached Table 1-2, Item 4-1, MHLW Notification No.36 of 1978) |

16. Other information

| | | |
|-------------------|---|--|
| Data sources | : | Handbook of 17423 Chemical Products, The Chemical Daily Co, Ltd. International Chemical Safety Cards. National Institute of Technology and Evaluation (NITE). 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. |