
Safety Data Sheet

1. Chemical product and company identification

Product name : 0.05mol/L(N/10) Bromine solution

SDS code : M6-14

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 | Desensitized explosives | classification not possible | |
| | 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 | classification not possible | |
| | Health hazards | Acute toxicity (oral) | classification not possible |
| | | 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 | | classification not possible | |
| Serious eye damage/eye irritation | | classification not possible | |
| Respiratory sensitization | | classification not possible | |
| Skin sensitization | | classification not possible | |
| Germ cell mutagenicity | | classification not possible | |
| Carcinogenicity | classification not possible | | |
| Reproductive toxicity | classification not possible | | |
| Specific target organ toxicity (single exposure) | classification not possible | | |

| | | |
|-----------------------|-----------------------------------------------------------|-----------------------------|
| Environmental hazards | Specific target organ toxicity (repeated exposure) | classification not possible |
| | Aspiration hazard | classification not possible |
| | Hazardous to the aquatic environment, short-term (acute) | classification not possible |
| | Hazardous to the aquatic environment, long-term (chronic) | classification not possible |
| | Hazardous to the ozone layer | classification not possible |

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 | |
| Potassium bromate | About 0.28% | KBrO ₃ | (1)-109 | Existing Chemical Substance | 7758-01-2 |
| Potassium bromide | About 1.44% | KBr | (1)-108 | 8-(4)-1705 | 7758-02-3 |
| Water | About 98.28% | 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 : Rinse mouth.
Get immediate medical advice/attention.

5. Fire fighting measures

- Suitable extinguishing media : Use proper extinguishing media depending on peripheral fire.
- Unsuitable extinguishing media : Do not use a heavy water stream.
- 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.
- 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 : 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 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 : Protective 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 : Odorless
- pH : 5.6 (25°C)
- 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 : No data available
- Vapor pressure : No data available
- Relative density : No data available
- Density : 1.01 g/cm³ (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 | : | No data available |
| Conditions to avoid | : | Sunlight, Heat |
| Incompatible materials | : | No data available |
| Hazardous decomposition products | : | Bromine compounds |

11. Toxicological information

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

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

| Potassium bromide | |
|---------------------------------------|-------------------|
| Carcinogenicity | No data available |
| Reproductive toxicity | No data available |
| STOT-single exposure | No data available |
| STOT-repeated exposure | No data available |
| Aspiration hazard | No data available |
| Water | |
| Acute toxicity (oral) | No classification |
| 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) | classification not possible |
| Hazardous to the aquatic environment, long-term (chronic) | classification not possible |
| Persistence and degradability | No data available |
| Bioaccumulative potential | No data available |
| Mobility in soil | No data available |
| Ozone | classification not possible |
| Potassium bromate | |
| Hazardous to Aquatic Environment - Acute Hazard | classification not possible |
| Hazardous to Aquatic Environment - Chronic Hazard | classification not possible |
| 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 |
| Potassium bromide | |
| Hazardous to Aquatic Environment - Acute Hazard | No data available |
| Hazardous to Aquatic Environment - Chronic Hazard | No data available |
| 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 |

| Water | |
|-------------------------------|-----------------------------|
| 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) : Not applicable
 Proper Shipping Name (IMDG) : Not applicable
 Packing group (IMDG) : Not applicable
 Transport hazard class(es) (IMDG) : Not applicable

Air transport(IATA)

- UN-No. (IATA) : Not applicable
 Proper Shipping Name (IATA) : Not applicable
 Packing group (IATA) : Not applicable
 Transport hazard class(es) (IATA) : Not applicable

- Marine pollutant : Not applicable

Regulations in Japan

- Regulatory information by sea : Not applicable
 Regulatory information by air : Not applicable

- 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 : **【Date of enforcement: April 1, 2025】**
 Dangerous or Harmful Substances for Notification of Chemical Name etc. on SDS (Act, Art.57-2, Enforcement Order, Art.18-2)
 Potassium bromate
- 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 : 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
- Japanese Pollutant Release and Transfer Register Law (PRTR Law) : Not applicable

16. Other information

- Data sources : Handbook of 17524 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.