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**Safety Data Sheet****1. Chemical product and company identification****Product name** : Artificial seawater (D1141-98)**SDS code** : Y6-01**Company/undertaking identification** :

HAYASHI PURE CHEMICAL IND.,LTD.

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URL : <https://www.hpc-j.co.jp/>**Emergency number** : 06-6910-7305**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  |                                 |                             |
| Specific target organ toxicity (repeated exposure) | classification not possible  |                                 |                             |
| Aspiration hazard                                  | classification not possible  |                                 |                             |

|                       |   |                             |
|-----------------------|---|-----------------------------|
| Environmental hazards | 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                     |            |
| Sodium chloride           | About 2.4%                           | NaCl                            | (1)-236      | 7-(3)-1053                  | 7647-14-5  |
| Magnesium chloride        | About 0.24%                          | MgCl <sub>2</sub>               | (1)-233      | Existing Chemical Substance | 7786-30-3  |
| Sodium sulfate            | About 0.4%                           | Na <sub>2</sub> SO <sub>4</sub> | (1)-501      | Existing Chemical Substance | 7757-82-6  |
| Calcium chloride          | About 0.114%                         | CaCl <sub>2</sub>               | (1)-176      | Existing Chemical Substance | 10043-52-4 |
| Potassium chloride        | About 0.068%                         | KCl                             | (1)-228      | Existing Chemical Substance | 7447-40-7  |
| Sodium hydrogen carbonate | About 0.02%                          | NaHCO <sub>3</sub>              | (1)-164      | Existing Chemical Substance | 144-55-8   |
| Potassium bromide         | About 0.01%                          | KBr                             | (1)-108      | 8-(4)-1705                  | 7758-02-3  |
| Boric acid                | About 0.003%                         | H <sub>3</sub> BO <sub>3</sub>  | (1)-63       | Existing Chemical Substance | 10043-35-3 |
| Strontium chloride        | About 0.0014%                        | SrCl <sub>2</sub>               | (1)-261      | Existing Chemical Substance | 10476-85-4 |
| Sodium fluoride           | About 0.0003%                        | NaF                             | (1)-332      | Existing Chemical Substance | 7681-49-4  |
| Water                     | About 96.7433%                       | H <sub>2</sub> 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 mass%, 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

| Exposure limit values   |   |
|-------------------------|---|
| <b>Boric acid</b>       |   |
| Exposure limits (ACGIH) | TWA 2 mg/m <sup>3</sup> (l), STEL 6 mg/m <sup>3</sup> (l) |
| <b>Sodium fluoride</b>  |   |
| Exposure limits (ACGIH) | TWA 2.5 mg/m <sup>3</sup> , STEL - (as F)                 |

- 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, Protective long boots       |

**9. Physical and chemical properties**

|   |                                 |
|---|---------------------------------|
| Physical state                                  | : Liquid                        |
| Appearance                                      | : Liquid                        |
| Color   | : colorless transparent         |
| Odor  | : Odorless                      |
| pH  | : 8.0 (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 (solid, gas)                       | : No data available             |
| Vapor pressure                                  | : No data available             |
| Relative density                                | : No data available             |
| Density   | : 1.02 g/cm <sup>3</sup> (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   | : Chlorine and its compounds, Sulfur oxides |

**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<br>Gases:classification not possible<br>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   |

| <b>Sodium chloride</b>                |                             |
|---------------------------------------|-----------------------------|
| Acute toxicity (oral)                 | classification not possible |
| Acute toxicity (dermal)               | classification not possible |
| Acute toxicity (gas)                  | classification not possible |
| Acute toxicity (vapour)               | No classification           |
| Acute toxicity (inhalation: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 |
| <b>Magnesium chloride</b>             |                             |
| Acute toxicity (oral)                 | classification not possible |
| Acute toxicity (dermal)               | classification not possible |
| Acute toxicity (gas)                  | classification not possible |
| Acute toxicity (vapour)               | No classification           |
| Acute toxicity (inhalation: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 |
| <b>Sodium sulfate</b>                 |                             |
| Acute toxicity (oral)                 | No classification           |
| 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             | No classification           |
| Serious eye damage/irritation         | Category 2B                 |
| Respiratory sensitization             | classification not possible |
| Skin sensitization                    | No classification           |
| Germ cell mutagenicity                | classification not possible |
| Carcinogenicity                       | classification not possible |
| Reproductive toxicity                 | classification not possible |
| STOT-single exposure                  | Category 1                  |
| STOT-repeated exposure                | No classification           |
| Aspiration hazard                     | classification not possible |
| <b>Calcium chloride</b>               |                             |
| 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             | classification not possible |

| <b>Calcium chloride</b>               |  |
|---------------------------------------|--|
| Serious eye damage/irritation         | Category 1                                 |
| 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                  | Category 3 (Respiratory tract irritation.) |
| STOT-repeated exposure                | Category 2                                 |
| Aspiration hazard                     | classification not possible                |
| <b>Potassium chloride</b>             |  |
| Acute toxicity (oral)                 | classification not possible                |
| Acute toxicity (dermal)               | classification not possible                |
| Acute toxicity (gas)                  | classification not possible                |
| Acute toxicity (vapour)               | No classification                          |
| Acute toxicity (inhalation: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                |
| <b>Sodium hydrogen carbonate</b>      |  |
| 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             | 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                  | No classification                          |
| STOT-repeated exposure                | classification not possible                |
| Aspiration hazard                     | classification not possible                |
| <b>Potassium bromide</b>              |  |
| 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                          |
| Carcinogenicity                       | No data available                          |

| <b>Potassium bromide</b>              |   |
|---------------------------------------|---|
| Reproductive toxicity                 | No data available                                     |
| STOT-single exposure                  | No data available                                     |
| STOT-repeated exposure                | No data available                                     |
| Aspiration hazard                     | No data available                                     |
| <b>Boric acid</b>                     |   |
| 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) | classification not possible                           |
| Skin corrosion/irritation             | Category 2  |
| Serious eye damage/irritation         | Category 2  |
| Respiratory sensitization             | classification not possible                           |
| Skin sensitization                    | classification not possible                           |
| Germ cell mutagenicity                | classification not possible                           |
| Carcinogenicity                       | classification not possible                           |
| Reproductive toxicity                 | Category 1B   |
| STOT-single exposure                  | Category 1 Category 3 (Respiratory tract irritation.) |
| STOT-repeated exposure                | classification not possible                           |
| Aspiration hazard                     | classification not possible                           |
| <b>Strontium chloride</b>             |   |
| Acute toxicity (oral)                 | No classification                                     |
| 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         | classification not possible                           |
| Respiratory sensitization             | classification not possible                           |
| Skin sensitization                    | classification not possible                           |
| Germ cell mutagenicity                | Category 2  |
| 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                           |
| <b>Sodium fluoride</b>                |   |
| Acute toxicity (oral)                 | Category 3  |
| Acute toxicity (dermal)               | classification not possible                           |
| Acute toxicity (gas)                  | No classification                                     |
| Acute toxicity (vapour)               | No classification                                     |
| Acute toxicity (inhalation:dust/mist) | classification not possible                           |
| Skin corrosion/irritation             | Category 2  |
| Serious eye damage/irritation         | Category 1  |
| 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                  | Category 1  |
| STOT-repeated exposure                | Category 1 Category 2                                 |
| Aspiration hazard                     | classification not possible                           |

| <b>Water</b>                          |                   |
|---------------------------------------|-------------------|
| 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.

| <b>As a product</b>                                       |                             |
|---|-----------------------------|
| 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 |
| <b>Sodium chloride</b>                                    |                             |
| 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                              | classification not possible |
| <b>Magnesium chloride</b>                                 |                             |
| 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                              | classification not possible |
| <b>Sodium sulfate</b>                                     |                             |
| 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 |
| <b>Calcium chloride</b>                                   |                             |
| Hazardous to Aquatic Environment - Acute Hazard           | No classification           |



| <b>Calcium chloride</b>                           |                             |
|---|-----------------------------|
| 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                      | No data available           |
| <b>Potassium chloride</b>                         |                             |
| 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                      | classification not possible |
| <b>Sodium hydrogen carbonate</b>                  |                             |
| 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 |
| <b>Potassium bromide</b>                          |                             |
| 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           |
| <b>Boric acid</b>                                 |                             |
| 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 |
| <b>Strontium chloride</b>                         |                             |
| 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 |
| <b>Sodium fluoride</b>                            |                             |
| Hazardous to Aquatic Environment - Acute Hazard   | Category 3                  |
| Hazardous to Aquatic Environment - Chronic Hazard | No classification           |
| Persistence and degradability                     | No data available           |

| <b>Sodium fluoride</b>                            |                             |
|---|-----------------------------|
| Bioaccumulative potential                         | No data available           |
| Mobility in soil                                  | No data available           |
| Hazardous to the ozone layer                      | classification not possible |
| <b>Water</b>                                      |                             |
| 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) : 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 : Not applicable  
 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  
 Waterworks Law : Hazardous Substances (Act Article 4 paragraph 2), Standard for Water Quality (Ministry Order No.101 of 2003)  
 Sewerage Law : Substances for Water Quality Standard (Act Art.12-2 Para.2, Enforcement Order Art.9-4)  
 Japanese Pollutant Release and Transfer Register Law (PRTR Law) : Not applicable

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- 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
- Soil Contamination Countermeasures Law : Designated Hazardous Substances (Act Art.2 Para.3, Enforcement Order Art.1)

## 16. Other information

- Data sources : Handbook of 17221 Chemical Products, The Chemical Daily Co, Ltd. International Chemical Safety Cards. National Institute of Technology and Evaluation (NITE). 2016 Emergency Response Guidebook (ERG 2016).
- 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.