

## Safety Data Sheet

# 9 Mix metal standard solution

Version : V2.0.0.1

Report No. : BWB2509-2016-MSDS-EP

Creation Date : 2026/01/04

Revision Date : -



\*Prepared in accordance with EU REACH Regulation (REACH 1907/2006 with amendment 2020/878)

## 1 Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

|                           |                               |
|---------------------------|-------------------------------|
| Product Name              | 9 Mix metal standard solution |
| Cat No.                   | BWB2509-2016                  |
| CAS No.                   | Not applicable                |
| EC No.                    | Not applicable                |
| Molecular Formula         | Not applicable                |
| REACH Registration Number | -                             |
| UFI                       | No information available      |

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

|                          |                              |
|--------------------------|------------------------------|
| Relevant identified uses | Please consult manufacturer. |
| Uses advised against     | Please consult manufacturer. |

### 1.3 Details of the supplier of the Safety Data Sheet

|                        |  |
|------------------------|--|
| Name of the company    | Weiyel Inc   |
| Address of the company | Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China |
| Post code              | 465350   |
| Telephone number       | 010-58103678   |
| Fax number             | 010-84840368   |
| E-mail address         | info@weiyel.com  |

### 1.4 Emergency telephone number

|                            |              |
|----------------------------|--------------|
| Emergency telephone number | 010-58103678 |
| Opening hours              | 24h          |

## 2 Hazards identification

### 2.1 CLP classification according to Regulation ( EC ) No. 1272/2008 with amendment 2023/707

|                               |             |
|-------------------------------|-------------|
| Skin corrosion/irritation     | Category 1A |
| Serious eye damage/irritation | Category 1  |
| Acute Toxicity - Inhalation   | Category 2  |

### 2.2 Label elements

|                   |   |
|-------------------|---|
| Hazard pictograms |  |
| Signal word       | <b>Danger</b>   |

### Hazard statements

|        |   |
|--------|---|
| H314   | Causes severe skin burns and eye damage |
| H318   | Causes serious eye damage               |
| H330   | Fatal if inhaled                        |
| EUH071 | Corrosive to the respiratory tract      |

### Precautionary statements

#### ◆ Prevention

|      |  |
|------|--|
| P260 | Do not breathe gas/mist/vapour/spray.  |
| P264 | Wash hands and other parts of the body (if related) thoroughly after handling. |
| P271 | Use only outdoors or in a well-ventilated area.                                |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection.     |
| P284 | [In case of inadequate ventilation] wear respiratory protection.               |

#### ◆ Response

|                |  |
|----------------|--|
| P310           | Immediately call a POISON CENTER/doctor.   |
| P320           | Specific treatment is urgent (see related instructions on the label).  |
| P321           | Specific treatment (see related instructions on the label).  |
| P363           | Wash contaminated clothing before reuse.   |
| P304+P340      | IF INHALED: Remove person to fresh air and keep comfortable for breathing.   |
| P301+P330+P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.   |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].               |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |

#### ◆ Storage

|           |  |
|-----------|--|
| P405      | Store locked up.   |
| P403+P233 | Store in a well-ventilated place. Keep container tightly closed. |

#### ◆ Disposal

|      |   |
|------|---|
| P501 | Dispose of contents/container in accordance with local/regional/national/international regulations. |
|------|---|

### 2.3 Other hazards

#### ◆ Results of PBT and vPvB assessment

| Component           | Results of PBT and vPvB assessment [according to (EC) No 1907/2006] |
|---------------------|---|
| Water               | Insufficient information, temporarily unable to evaluate            |
| Nitric acid         | Not PBT/vPvB  |
| Lithium carbonate   | Not applicable  |
| Scandium trinitrate | Insufficient information, temporarily unable to evaluate            |

|   |  |
|---|--|
| <b>Germanium dioxide</b>                | Not PBT/vPvB   |
| <b>Yttrium oxide</b>                    | Not applicable   |
| <b>Rhodium</b>                          | Insufficient information, temporarily unable to evaluate |
| <b>Indium</b>                           | Not PBT/vPvB   |
| <b>TERBIUM NITRATE,<br/>HEXAHYDRATE</b> | Insufficient information, temporarily unable to evaluate |
| <b>Rhenium</b>                          | Not PBT/vPvB   |
| <b>Bismuth</b>                          | Not applicable   |

◆ Results of endocrine disrupting properties assessment

| <b>Component</b>                        | <b>Results of endocrine disrupting properties assessment [according to (EU) No 2017/2100 or (EU) No 2018/605]</b> |
|---|---|
| <b>Water</b>                            | Insufficient information, temporarily unable to evaluate  |
| <b>Nitric acid</b>                      | Insufficient information, temporarily unable to evaluate  |
| <b>Lithium carbonate</b>                | Insufficient information, temporarily unable to evaluate  |
| <b>Scandium trinitrate</b>              | Insufficient information, temporarily unable to evaluate  |
| <b>Germanium dioxide</b>                | Insufficient information, temporarily unable to evaluate  |
| <b>Yttrium oxide</b>                    | Insufficient information, temporarily unable to evaluate  |
| <b>Rhodium</b>                          | Insufficient information, temporarily unable to evaluate  |
| <b>Indium</b>                           | Insufficient information, temporarily unable to evaluate  |
| <b>TERBIUM NITRATE,<br/>HEXAHYDRATE</b> | Insufficient information, temporarily unable to evaluate  |
| <b>Rhenium</b>                          | Insufficient information, temporarily unable to evaluate  |
| <b>Bismuth</b>                          | Insufficient information, temporarily unable to evaluate  |

◆ Other

|  |                 |
|--|-----------------|
|  | Not applicable. |
|--|-----------------|

### 3 Composition/information on ingredients

#### 3.1 Substance

|  |                |
|--|----------------|
|  | Not applicable |
|--|----------------|

#### 3.2 Mixture

| <b>Component</b>  | <b>Weight % content(or range)</b> | <b>Classification according to Regulation ( EC ) No. 1272/2008 with amendment 2023/707 [CLP]</b>   | <b>Specific Conc. Limits, M-factors</b> |
|---|-----------------------------------|--|---|
| <b>Water</b><br>CAS : 7732-18-5<br>EC : 231-791-2<br>Index No. : -                  | 94.491                            | Not Classified   | -                                       |
| <b>Nitric acid</b><br>CAS : 7697-37-2<br>EC : 231-714-2<br>Index No. : 007-004-00-1 | 5                                 | Oxidizing liquids, Category 2, H272; Skin corrosion/irritation, Category 1A, H314; Acute Toxicity - Inhalation, Category 1, H330; Corrosive to the respiratory tract, EUH071 | H272Y2:C ≥ 99% H272Y3:70% ≤ C < 99%     |
| <b>Lithium carbonate</b><br>CAS : 554-13-2  | 0.001                             | Acute Toxicity - Oral, Category 4, H302; Serious eye damage/irritation, Category 2,  | -                                       |

|  |       |  |     |
|--|-------|--|-----|
| EC : 209-062-5<br>Index No. : -  |       | H319   |     |
| <b>Scandium trinitrate</b><br>CAS : 13465-60-6<br>EC : 236-701-5<br>Index No. : -          | 0.001 | Oxidizing solids, Category 2, H272;<br>Carcinogenicity, Category 1B, H350  | -   |
| <b>Germanium dioxide</b><br>CAS : 1310-53-8<br>EC : 215-180-8<br>Index No. : -             | 0.001 | Reproductive toxicity, Category 2, H361;<br>Specific target organ toxicity - repeated exposure, Category 2, H373; Hazardous to the aquatic environment - short-term (acute) hazard, Category 1, H400;<br>Hazardous to the aquatic environment - long-term (chronic) hazard, Category 3, H412 | M=1 |
| <b>Yttrium oxide</b><br>CAS : 1314-36-9<br>EC : 215-233-5<br>Index No. : -                 | 0.001 | Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335   | -   |
| <b>Rhodium</b><br>CAS : 7440-16-6<br>EC : 231-125-0<br>Index No. : -                       | 0.001 | Not Classified   | -   |
| <b>Indium</b><br>CAS : 7440-74-6<br>EC : 231-180-0<br>Index No. : -                        | 0.001 | Specific target organ toxicity - repeated exposure, Category 1, H372   | -   |
| <b>TERBIUM NITRATE, HEXAHYDRATE</b><br>CAS : 13451-19-9<br>EC : 627-823-3<br>Index No. : - | 0.001 | Oxidizing solids, Category 2, H272; Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335   | -   |
| <b>Rhenium</b><br>CAS : 7440-15-5<br>EC : 231-124-5<br>Index No. : -                       | 0.001 | Not Classified   | -   |
| <b>Bismuth</b><br>CAS : 7440-69-9<br>EC : 231-177-4<br>Index No. : -                       | 0.001 | Not Classified   | -   |

## 4 First-aid measures

### 4.1 Description of first aid measures

|                                   |   |
|-----------------------------------|---|
| <b>General advice</b>             | Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.   |
| <b>Eye contact</b>                | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.  |
| <b>Skin contact</b>               | Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.   |
| <b>Ingestion</b>                  | Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.   |
| <b>Inhalation</b>                 | Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately. |
| <b>Protecting of first-aiders</b> | Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.  |

#### 4.2 Most important symptoms/effects, acute and delayed

|   |  |
|---|--|
| 1 | Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. |
|---|--|

#### 4.3 Indication of any immediate medical attention and special treatment needed

|   |                          |
|---|--------------------------|
| 1 | Treat symptomatically.   |
| 2 | Symptoms may be delayed. |

### 5 Fire-fighting measures

#### 5.1 Extinguishing media

|                                       |  |
|---------------------------------------|--|
| <b>Suitable extinguishing media</b>   | Small fire: dry chemical, CO <sub>2</sub> or water spray; Large fire: dry chemical, CO <sub>2</sub> , alcohol-resistant foam or water spray; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not get water inside containers. |
| <b>Unsuitable extinguishing media</b> | No information available.  |

#### 5.2 Specific hazards arising from the substance or mixture

|   |   |
|---|---|
| 1 | Fire may produce irritating, poisonous or corrosive gases.                        |
| 2 | Development of hazardous combustion gases or vapor possible in the event of fire. |
| 3 | May expansion or decompose explosively when heated or involved in fire.           |

#### 5.3 Advice for firefighters

|   |   |
|---|---|
| 1 | As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear. |
| 2 | Fight fire from a safe distance, with adequate cover.   |
| 3 | Prevent fire extinguishing water from contaminating surface water or the ground water system.                         |

### 6 Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

|   |   |
|---|---|
| 1 | Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.                    |
| 2 | Do not touch or walk through spilled material.  |
| 3 | Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.                 |
| 4 | Use personal protective equipment, do not breathe gas/mist/vapour/spray.  |
| 5 | Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. |
| 6 | Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.                                   |

#### 6.2 Environmental precautions

|   |   |
|---|---|
| 1 | Prevent further leakage or spillage if safe to do so. |
| 2 | Discharge into the environment must be avoided.       |

#### 6.3 Methods and materials for containment and cleaning up

|   |   |
|---|---|
| 1 | Do not touch or cross spills.   |
| 2 | It is recommended that emergency personnel wear a self-contained breathing apparatus with positive pressure and wear anti-corrosion clothing. |
| 3 | Transfer to a tank truck or special collector with a corrosion-resistant pump.  |

|   |   |
|---|---|
| 4 | Do not touch broken containers and spills before putting on appropriate protective clothing.                                |
| 5 | Cut off the source of the leak as much as possible.   |
| 6 | Keep leaks in a ventilated place.   |
| 7 | Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.    |
| 8 | Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.  |
| 9 | Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container. |

#### 6.4 Reference to other sections

|   |  |
|---|--|
| 1 | Personal Protective Equipment advice is contained in Section 8 of the SDS. |
| 2 | Disposal considerations advice is contained in Section 13 of the SDS.      |

## 7 Handling and storage

### 7.1 Precautions for safe handling

#### ◆ Protective measures

|   |   |
|---|---|
| 1 | Handling is performed in a well ventilated place. |
| 2 | Wear suitable protective equipment.               |
| 3 | Avoid contact with skin and eyes.                 |

#### ◆ Measures to prevent fire

|   |   |
|---|---|
| 1 | Keep away from heat/sparks/open flames/ hot surfaces. |
|---|---|

#### ◆ Measures to prevent aerosol and dust generation

|   |                 |
|---|-----------------|
| 1 | Not applicable. |
|---|-----------------|

#### ◆ Advice on general occupational hygiene

|   |   |
|---|---|
| 1 | Wash hands and face after using the substances. |
| 2 | Replace the contaminated clothing immediately.  |

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

|   |  |
|---|--|
| 1 | Keep containers tightly closed.                                  |
| 2 | Keep containers in a dry, cool and well-ventilated place.        |
| 3 | Keep away from heat/sparks/open flames/hot surfaces.             |
| 4 | Store away from incompatible materials and foodstuff containers. |

### 7.3 Specific end use(s)

|   |  |
|---|--|
| 1 | In addition to use mentioned in the Section 1.2, unforeseen other specific end uses. |
|---|--|

## 8 Exposure controls/personal protection

### 8.1 Control parameters

#### ◆ Occupational exposure limit values

| Component   | Country/Region             | Limit value - Eight hours |                   | Limit value - Short term |                   |
|-------------|----------------------------|---------------------------|-------------------|--------------------------|-------------------|
|             |                            | ppm                       | mg/m <sup>3</sup> | ppm                      | mg/m <sup>3</sup> |
| Nitric acid | Japan -<br>JSOH(2024-2025) | 2                         | 5.2               | -                        | -                 |
|             | Permissible                | 2                         | 5.2               | 4                        | 10.4              |

|                          |   |   |                        |   |                        |
|--------------------------|---|---|------------------------|---|------------------------|
|                          | exposure standards for workers in the workplace             |   |                        |   |                        |
|                          | European Union  | - | -                      | 1 | 2.6                    |
|                          | France  | - | -                      | 1 | 2.6                    |
|                          | Germany (AGS)   | - | -                      | 1 | 2.6                    |
|                          | Italy   | - | -                      | 1 | 2.6                    |
| <b>Germanium dioxide</b> | Germany (AGS)   | - | 0.85                   | - | 1.7                    |
|                          | Latvia  | - | 2                      | - | -                      |
| <b>Yttrium oxide</b>     | Permissible exposure standards for workers in the workplace | - | 1 (as Y)               | - | 2 (as Y)               |
|                          | USA - ACGIH   | - | 1(as Y)                | - | -                      |
| <b>Rhodium</b>           | Japan - JSOH(2024-2025)                                     | - | 0.001                  | - | -                      |
|                          | Permissible exposure standards for workers in the workplace | - | 0.1(fume)              | - | 0.3(fume)              |
|                          | France  | - | 1                      | - | -                      |
|                          | United Kingdom  | - | 0.1                    | - | 0.3                    |
|                          | Belgium   | - | 1                      | - | -                      |
|                          | Denmark   | - | 0.1                    | - | 0.2                    |
| <b>Indium</b>            | Permissible exposure standards for workers in the workplace | - | 0.1                    | - | 0.3                    |
|                          | Germany (AGS)   | - | 0.0001                 | - | 0.0008                 |
|                          | United Kingdom  | - | 0.1                    | - | 0.3                    |
|                          | Austria   | - | 0.1(inhalable aerosol) | - | 0.2(inhalable aerosol) |
|                          | Belgium   | - | 0.1                    | - | -                      |
|                          | Denmark   | - | 0.1                    | - | 0.2                    |

◆ Biological limit values

| Component     | Standard   | Biological monitoring index | Biological limits value | Sampling time | Remark |
|---------------|------------|-----------------------------|-------------------------|---------------|--------|
| <b>Indium</b> | USA -ACGIH | Indium(Serum or Plasma)     | 1µg/L                   | Not critical  |        |

◆ Monitoring methods

|   |   |
|---|---|
| 1 | EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. |
| 2 | GBZ/T 300 and GBZ/T 160 series standard Determination of toxic substances in workplace air.   |

## ◆ Derived No effect level (DNEL)

| Component                    | Route of exposure | DNEL for Workers      |                          |                         |                            |
|------------------------------|-------------------|-----------------------|--------------------------|-------------------------|----------------------------|
|                              |                   | Acute effects (local) | Acute effects (systemic) | Chronic effects (local) | Chronic effects (systemic) |
| Water                        | Inhalation        | No data available     | No data available        | No data available       | No data available          |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| Nitric acid                  | Inhalation        | No data available     | No data available        | No data available       | No data available          |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| Lithium carbonate            | Inhalation        | No data available     | No data available        | No data available       | 10 mg/m3                   |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| Scandium trinitrate          | Inhalation        | No data available     | No data available        | No data available       | No data available          |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| Germanium dioxide            | Inhalation        | No data available     | No data available        | No data available       | 0.335 mg/m3                |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| Yttrium oxide                | Inhalation        | No data available     | No data available        | No data available       | No data available          |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| Rhodium                      | Inhalation        | No data available     | No data available        | No data available       | No data available          |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| Indium                       | Inhalation        | No data available     | No data available        | 0.0063 mg/m3            | No data available          |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| TERBIUM NITRATE, HEXAHYDRATE | Inhalation        | No data available     | No data available        | No data available       | No data available          |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| Rhenium                      | Inhalation        | No data available     | No data available        | No data available       | No data available          |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |
| Bismuth                      | Inhalation        | No data available     | No data available        | No data available       | 13.1 mg/m3                 |
|                              | Oral              | No data available     | No data available        | No data available       | No data available          |
|                              | Dermal            | No data available     | No data available        | No data available       | No data available          |

## ◆ Predicted No Effect Concentration (PNEC)

| Component                | A                    | B                    | C                    | D                       | E                       | F                    | G                    | H                                |
|--------------------------|----------------------|----------------------|----------------------|-------------------------|-------------------------|----------------------|----------------------|----------------------------------|
| <b>Nitric acid</b>       | No hazard identified | No hazard identified | No hazard identified | No hazard identified    | No hazard identified    | No hazard identified | No hazard identified | No potential for bioaccumulation |
| <b>Lithium carbonate</b> | 9 mg/L               | 900 µg/L             | 122.2 mg/L           | 238.4 mg/kg sediment dw | 23.84 mg/kg sediment dw | No hazard identified | 44.11 mg/kg soil dw  | No potential for bioaccumulation |
| <b>Germanium dioxide</b> | 43.4 µg/L            | 43.4 µg/L            | 7 mg/L               | 599.4 mg/kg sediment dw | 19.6 mg/kg sediment dw  | No hazard identified | 43.4 mg/kg soil dw   | No potential for bioaccumulation |
| <b>Rhodium</b>           | No hazard identified | No hazard identified | No hazard identified | No hazard identified    | No hazard identified    | No hazard identified | No hazard identified | No potential for bioaccumulation |
| <b>Indium</b>            | 40.6 µg/L            | 40.6 µg/L            | 51.6 mg/L            | 5051 mg/kg sediment dw  | 5051 mg/kg sediment dw  | No hazard identified | 7.3 mg/kg soil dw    | No potential for bioaccumulation |
| <b>Bismuth</b>           | No data available    | No data available    | 17.5 mg/L            | No data available       | No data available       | No data available    | No data available    | No data available                |

**Note 1:**

A: Freshwater; B: Seawater; C: Sewage treatment plant; D: Sediment (freshwater); E: Sediment (seawater); F: Air; G: Soil; H: Secondary poisoning(Hazard for Predators).

**Note 2:**

The PNEC values of the remaining components not shown in the product are not available yet.

## 8.2 Exposure controls

### 8.2.1 Engineering controls

|   |  |
|---|--|
| 1 | Ensure adequate ventilation, especially in confined areas.                             |
| 2 | Ensure that eyewash stations and safety showers are close to the workstation location. |
| 3 | Use explosion-proof electrical/ventilating/lighting/equipment.                         |
| 4 | Set up emergency exit and necessary risk-elimination area.                             |

### 8.2.2 Personal protection equipment

|                                 |  |
|---------------------------------|--|
| <b>General requirement</b>      |  |
| <b>Eye protection</b>           | Must wear appropriate anti-corrosion goggles.  |
| <b>Hand protection</b>          | Must wear acid and alkali resistant chemical protective gloves.                      |
| <b>Respiratory protection</b>   | Must wear appropriate personal dust proof gas mask.                                  |
| <b>Skin and body protection</b> | Must wear acid and alkali resistant chemical protective clothing.                    |

### 8.2.3 Environmental exposure controls

|  |                          |
|--|--------------------------|
| <b>Environmental exposure controls</b> | No information available |
|--|--------------------------|

## 9 Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|   |   |
|---|---|
| Physical state                              | clear or clear yellow liquid  |
| Colour                                      | clear or clear yellow liquid  |
| Odor  | No information available  |
| Odor threshold                              | No information available  |
| pH  | < 1 ( Nitric acid )   |
| Melting point/freezing point(°C)            | -41.6 ( Nitric acid )   |
| Initial boiling point and boiling range(°C) | 121 ( Nitric acid )   |
| Flash point(Closed cup, °C)                 | No information available  |
| Evaporation rate                            | No information available  |
| Flammability                                | No information available  |
| Upper/lower explosive limits[%(v/v)]        | Upper limit : No information available ; Lower limit : No information available |
| Vapor pressure                              | 6.4kPa ( 20°C ,Nitric acid )  |
| Vapor density(Air = 1)                      | 2.2 ( Nitric acid )   |
| Relative density(Water=1)                   | 1.4 ( Nitric acid )   |
| Solubility                                  | 500000mg/L ( 20 °C,Nitric acid )  |
| n-octanol/water partition coefficient       | -0.21 ( Nitric acid )   |
| Auto-ignition temperature(°C)               | No information available  |
| Decomposition temperature(°C)               | No information available  |
| Kinematic viscosity                         | No information available  |
| Explosive properties                        | No information available  |
| Oxidizing properties                        | No information available  |
| Particle characteristics                    | Not applicable  |

### 9.2 Other information

#### 9.2.1 Information with regard to physical hazard classes

|  |                          |
|--|--------------------------|
| Information with regard to physical hazard classes | No information available |
|--|--------------------------|

#### 9.2.2 Other safety characteristics

|                              |                          |
|------------------------------|--------------------------|
| Other safety characteristics | No information available |
|------------------------------|--------------------------|

## 10 Stability and reactivity

### Stability and reactivity

|   |   |
|---|---|
| 10.1 Reactivity                         | Contact with incompatible substances can cause decomposition or other chemical reactions.                               |
| 10.2 Chemical stability                 | Stable under proper operation and storage conditions.   |
| 10.3 Possibility of hazardous reactions | In contact with active metals (alkali metals, Na, Ca etc.) causes a reaction and release hydrogen.                      |
| 10.4 Conditions to avoid                | Incompatible materials, heat, flame and spark.  |
| 10.5 Incompatible materials             | Alkali, sodium, calcium, and other active metal, halogen, metal oxide, nonmetal oxide, acyl halide and metal phosphide. |

|  |  |
|--|--|
| <b>10.6 Hazardous decomposition products</b> | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
|--|--|

## 11 Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008 with amendment 2023/707

| 9 Mix metal standard solution        |  |
|--------------------------------------|--|
| <b>Skin corrosion/irritation</b>     | Causes severe skin burns and eye damage(Category 1A)             |
| <b>Serious eye damage/irritation</b> | Causes serious eye damage(Category 1)                            |
| <b>Skin sensitization</b>            | Based on available data, the classification criteria are not met |
| <b>Respiratory sensitization</b>     | Based on available data, the classification criteria are not met |
| <b>Reproductive toxicity</b>         | Based on available data, the classification criteria are not met |
| <b>STOT-single exposure</b>          | Based on available data, the classification criteria are not met |
| <b>STOT-repeated exposure</b>        | Based on available data, the classification criteria are not met |
| <b>Aspiration hazard</b>             | Based on available data, the classification criteria are not met |
| <b>Germ cell mutagenicity</b>        | Based on available data, the classification criteria are not met |

#### Acute toxicity

| Component                           | LD <sub>50</sub> (oral) | LD <sub>50</sub> (dermal) | LC <sub>50</sub> (inhalation,4h) |
|-------------------------------------|-------------------------|---------------------------|----------------------------------|
| <b>Bismuth</b>                      | 5000mg/kg(Rat)          | No information available  | No information available         |
| <b>TERBIUM NITRATE, HEXAHYDRATE</b> | > 5000mg/kg(Rat)        | No information available  | No information available         |
| <b>Lithium carbonate</b>            | 525mg/kg(Rat)           | No information available  | No information available         |
| <b>Germanium dioxide</b>            | 1250mg/kg(Rat)          | No information available  | > 1.42mg/L(Rat)                  |

#### Carcinogenicity

| Component                           | List of carcinogens by the IARC Monographs | Report on Carcinogens by NTP |
|-------------------------------------|--|------------------------------|
| <b>Water</b>                        | Not Listed                                 | Not Listed                   |
| <b>Nitric acid</b>                  | Not Listed                                 | Not Listed                   |
| <b>Lithium carbonate</b>            | Not Listed                                 | Not Listed                   |
| <b>Scandium trinitrate</b>          | Not Listed                                 | Not Listed                   |
| <b>Germanium dioxide</b>            | Not Listed                                 | Not Listed                   |
| <b>Yttrium oxide</b>                | Not Listed                                 | Not Listed                   |
| <b>Rhodium</b>                      | Not Listed                                 | Not Listed                   |
| <b>Indium</b>                       | Not Listed                                 | Not Listed                   |
| <b>TERBIUM NITRATE, HEXAHYDRATE</b> | Not Listed                                 | Not Listed                   |
| <b>Rhenium</b>                      | Not Listed                                 | Not Listed                   |
| <b>Bismuth</b>                      | Not Listed                                 | Not Listed                   |

#### 11.2 Information on other hazards

##### 11.2.1 Endocrine disrupting properties

| Component                       | Endocrine disrupting properties |
|---------------------------------|---------------------------------|
| Water                           | No information available        |
| Nitric acid                     | No information available        |
| Lithium carbonate               | No information available        |
| Scandium trinitrate             | No information available        |
| Germanium dioxide               | No information available        |
| Yttrium oxide                   | No information available        |
| Rhodium                         | No information available        |
| Indium                          | No information available        |
| TERBIUM NITRATE,<br>HEXAHYDRATE | No information available        |
| Rhenium                         | No information available        |
| Bismuth                         | No information available        |

### 11.2.2 Other Information

| Other Information | See Section 11.1 |
|-------------------|------------------|
|                   |                  |

## 12 Ecological information

### 12.1 Toxicity

#### Acute aquatic toxicity

| Component         | Fish                                      | Crustaceans                                     | Algae or other aquatic plants              |
|-------------------|---|---|--|
| Bismuth           | LC <sub>50</sub> : 100mg/L (96h)(Fish)    | EC <sub>50</sub> : > 100mg/L (48h)(Crustaceans) | No information available                   |
| Indium            | LC <sub>50</sub> : 19.519mg/L (96h)(Fish) | No information available                        | No information available                   |
| Lithium carbonate | LC <sub>50</sub> : 30.3mg/L (96h)(Fish)   | EC <sub>50</sub> : 33.2mg/L (48h)(Crustaceans)  | ErC <sub>50</sub> : > 400mg/L (72h)(Algae) |

#### Chronic aquatic toxicity

| Component         | Fish                   | Crustaceans              | Algae or other aquatic plants |
|-------------------|------------------------|--------------------------|-------------------------------|
| Lithium carbonate | NOEC : 17.35mg/L(Fish) | No information available | No information available      |

### 12.2 Persistence and degradability

| Component         | Persistence (water/soil) | Persistence (air) |
|-------------------|--------------------------|-------------------|
| Lithium carbonate | Low                      | Low               |
| Germanium dioxide | High                     | High              |

### 12.3 Bioaccumulative potential

| Component         | Bioaccumulative potential | Comments        |
|-------------------|---------------------------|-----------------|
| Lithium carbonate | Low                       | Log Kow=-0.4605 |

|                   |     |               |
|-------------------|-----|---------------|
| Germanium dioxide | Low | Log Kow=1.119 |
|-------------------|-----|---------------|

#### 12.4 Mobility in soil

| Component         | log Koc | Remark |
|-------------------|---------|--------|
| Lithium carbonate | 0.000   |        |
| Germanium dioxide | 1.375   |        |
| Yttrium oxide     | 6.74    | 20 °C  |

#### 12.5 Results of PBT and vPvB assessment

| Component                       | Results of PBT and vPvB assessment [according to (EC) No 1907/2006] |
|---------------------------------|---|
| Water                           | Insufficient information, temporarily unable to evaluate            |
| Nitric acid                     | Not PBT/vPvB  |
| Lithium carbonate               | Not applicable  |
| Scandium trinitrate             | Insufficient information, temporarily unable to evaluate            |
| Germanium dioxide               | Not PBT/vPvB  |
| Yttrium oxide                   | Not applicable  |
| Rhodium                         | Insufficient information, temporarily unable to evaluate            |
| Indium                          | Not PBT/vPvB  |
| TERBIUM NITRATE,<br>HEXAHYDRATE | Insufficient information, temporarily unable to evaluate            |
| Rhenium                         | Not PBT/vPvB  |
| Bismuth                         | Not applicable  |

#### 12.6 Endocrine disrupting properties

| Component                       | Endocrine disrupting properties |
|---------------------------------|---------------------------------|
| Water                           | No information available        |
| Nitric acid                     | No information available        |
| Lithium carbonate               | No information available        |
| Scandium trinitrate             | No information available        |
| Germanium dioxide               | No information available        |
| Yttrium oxide                   | No information available        |
| Rhodium                         | No information available        |
| Indium                          | No information available        |
| TERBIUM NITRATE,<br>HEXAHYDRATE | No information available        |
| Rhenium                         | No information available        |
| Bismuth                         | No information available        |

#### 12.7 Other adverse effects

|  |                          |
|--|--------------------------|
|  | No information available |
|--|--------------------------|

## 13 Disposal considerations

### 13.1 Waste treatment methods

|                          |  |
|--------------------------|--|
| Waste chemicals          | Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.                       |
| Contaminated packaging   | Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible. |
| Disposal recommendations | Refer to section waste chemicals and contaminated packaging.   |

## 14 Transport information

### Label and Mark

|                    |   |
|--------------------|---|
| Transporting Label |  |
|--------------------|---|

### IMDG-CODE

|  |   |
|--|---|
| 14.1 UN number                         | 3264  |
| 14.2 UN proper shipping name           | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. |
| 14.3 Transport hazard class            | 8   |
| 14.4 Packing group                     | III   |
| 14.5 Environmental hazards (Yes or no) | No  |

### IATA-DGR

|  |   |
|--|---|
| 14.1 UN number                         | 3264  |
| 14.2 UN proper shipping name           | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. |
| 14.3 Transport hazard class            | 8   |
| 14.4 Packing group                     | III   |
| 14.5 Environmental hazards (Yes or no) | No  |

### UN-ADR

|  |   |
|--|---|
| 14.1 UN number                         | 3264  |
| 14.2 UN proper shipping name           | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. |
| 14.3 Transport hazard class            | 8   |
| 14.4 Packing group                     | III   |
| 14.5 Environmental hazards (Yes or no) | No  |

### Special precautions for user

|  |   |
|--|---|
|  | Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements. |
|--|---|

### Maritime transport in bulk according to IMO instruments

- ◆ Transport in bulk according to Annex II of MARPOL and the IBC code

|  |               |
|--|---------------|
|  | Not Available |
| ◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code |               |
|  | Not Available |
| ◆ Transport in bulk in accordance with the IGC Code                      |               |
|  | Not Available |

## 15 Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International chemical inventory

| Component                       | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Water                           | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| Nitric acid                     | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| Lithium carbonate               | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| Scandium trinitrate             | × | √ | √ | × | × | × | √ | × | √ | × | × | √ | √ |
| Germanium dioxide               | √ | √ | √ | √ | √ | × | √ | √ | √ | × | × | √ | √ |
| Yttrium oxide                   | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| Rhodium                         | √ | √ | √ | √ | √ | √ | √ | √ | × | × | √ | √ | √ |
| Indium                          | √ | √ | √ | √ | √ | √ | √ | √ | × | √ | √ | √ | √ |
| TERBIUM NITRATE,<br>HEXAHYDRATE | × | × | × | × | × | × | × | × | × | × | × | √ | √ |
| Rhenium                         | √ | √ | √ | √ | √ | √ | √ | √ | × | × | × | √ | √ |
| Bismuth                         | √ | √ | √ | √ | √ | √ | √ | √ | × | √ | √ | √ | √ |

- [A] China Inventory of Existing Chemical Substances(IECSC)  
 [B] European Inventory of Existing Commercial Chemical Substances(EC inventory)  
 [C] United States Toxic Substances Control Act Inventory(TSCA)  
 [D] Canadian Domestic Substances List(DSL)  
 [E] New Zealand Inventory of Chemicals(NZIoC)  
 [F] Philippines Inventory of Chemicals and Chemical Substances(PICCS)  
 [G] Korea Existing Chemicals Inventory(KECL)  
 [H] Australian. Inventory of Industrial Chemical (AIICS)  
 [I] Japan Inventory of Existing & New Chemical Substances(ENCS)  
 [J] Thailand Existing Chemicals Inventory(TECI)  
 [K] Mexico National Inventory of Chemical Substances (INSQ)  
 [L] Russia Inventory of Existing Substances (DRAFT)  
 [M] Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

#### List of Chemical Substances under International Conventions

| Component           | A | B | C |
|---------------------|---|---|---|
| Water               | × | × | × |
| Nitric acid         | × | × | × |
| Lithium carbonate   | × | × | × |
| Scandium trinitrate | × | × | × |
| Germanium dioxide   | × | × | × |

|                                 |   |   |   |
|---------------------------------|---|---|---|
| Yttrium oxide                   | x | x | x |
| Rhodium                         | x | x | x |
| Indium                          | x | x | x |
| TERBIUM NITRATE,<br>HEXAHYDRATE | x | x | x |
| Rhenium                         | x | x | x |
| Bismuth                         | x | x | x |

[A] The Montreal Protocol on Substances that Deplete the Ozone Layer

[B] Stockholm Convention on Persistent Organic Pollutants (POPs)

[C] Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

### European chemical inventory

| Component                       | A | B | C | D | E | F | G | H | I |
|---------------------------------|---|---|---|---|---|---|---|---|---|
| Water                           | x | x | x | √ | x | x | x | x | x |
| Nitric acid                     | x | x | x | √ | √ | x | x | x | x |
| Lithium carbonate               | x | x | x | √ | √ | x | x | x | x |
| Scandium trinitrate             | x | x | x | √ | x | x | x | x | x |
| Germanium dioxide               | x | x | x | √ | √ | x | x | x | x |
| Yttrium oxide                   | x | x | x | √ | √ | x | x | x | x |
| Rhodium                         | x | x | x | √ | √ | x | x | x | x |
| Indium                          | x | x | x | √ | √ | x | x | x | x |
| TERBIUM NITRATE,<br>HEXAHYDRATE | x | x | x | x | x | x | x | x | x |
| Rhenium                         | x | x | x | √ | √ | x | x | x | x |
| Bismuth                         | x | x | x | √ | √ | x | x | x | x |

[A] Candidate list of Substances of Very High Concern for authorization under EU REACH regulation

[B] Substances requiring authorisation under EU REACH regulation

[C] Substances restricted under EU REACH

[D] Pre-registered substances under EU REACH

[E] Registered substances under EU REACH

[F] Substance Evaluation – CoRAP under EU REACH

[G] List of priority substances under EU water policy ( Directive 2455/2001/EC )

[H] Substances subject to POPs Regulation

[I] Substances proposed as POPs

Note:

“√” Indicates that the substance included in the regulations.

“x” No data or not included in the regulations.

### German water hazard class(WGK)

| Component         | WGK   | Remark |
|-------------------|-------|--------|
| Nitric acid       | WGK 1 |        |
| Lithium carbonate | WGK 1 |        |
| Germanium dioxide | WGK 3 |        |

|                      |       |  |
|----------------------|-------|--|
| <b>Yttrium oxide</b> | WGK 1 |  |
| <b>Rhodium</b>       | nwg   |  |
| <b>Indium</b>        | WGK 1 |  |
| <b>Rhenium</b>       | nwg   |  |
| <b>Bismuth</b>       | nwg   |  |

- 【WGK 1】 slightly hazardous to water  
 【WGK 2】 obviously hazardous to water  
 【WGK 3】 highly hazardous to water  
 【nwg】 non-hazardous to water  
 【awg】 hazardous to water in general

### German technical instructions on air quality control(TA LUFT)

| Component                | TA LUFT   | Remark |
|--------------------------|---|--------|
| <b>Lithium carbonate</b> | Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> . |        |
| <b>Germanium dioxide</b> | Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> . |        |
| <b>Yttrium oxide</b>     | Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration  |        |

|                |   |  |
|----------------|---|--|
|                | must not exceed 10 mg/m <sup>3</sup> .  |  |
| <b>Rhodium</b> | Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> . |  |
| <b>Indium</b>  | Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> . |  |
| <b>Rhenium</b> | Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> . |  |
| <b>Bismuth</b> | Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> . |  |

**German technical rules for hazardous substances(TRGS)**

| Component         | TRGS   | Remark |
|-------------------|--|--------|
| Water             | TRGS 500 TRGS 509 TRGS 510   |        |
| Nitric acid       | TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 401 TRGS 500 TRGS 509 TRGS 510 TRGS 800   |        |
| Lithium carbonate | TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 402 TRGS 500 TRGS 509 TRGS 510  |        |
| Germanium dioxide | TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 402 TRGS 500 TRGS 509 TRGS 510  |        |
| Yttrium oxide     | TRGS 500 TRGS 509 TRGS 510   |        |
| Rhodium           | TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 500 TRGS 509 TRGS 510 TRGS 800 TRGS 720 TRGS 721 TRGS 722 TRGS 723 TRGS 724                   |        |
| Indium            | TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 402 TRGS 401 TRGS 500 TRGS 509 TRGS 510 TRGS 800 TRGS 720 TRGS 721 TRGS 722 TRGS 723 TRGS 724 |        |
| Rhenium           | TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 500 TRGS 509 TRGS 510 TRGS 800 TRGS 720 TRGS 721 TRGS 722 TRGS 723 TRGS 724                   |        |
| Bismuth           | TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 500 TRGS 509 TRGS 510 TRGS 800 TRGS 720 TRGS 721 TRGS 722 TRGS 723 TRGS 724                   |        |

**15.2 Chemical safety assessment**

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

**16 Other information****Information on revision**

|                     |            |
|---------------------|------------|
| Creation Date       | 2026/01/04 |
| Revision Date       | -          |
| Reason for revision | -          |

**Reference**

- [1] IPCS: The International Chemical SafetyCards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

## Abbreviations and acronyms

|                  |                                      |           |   |
|------------------|--------------------------------------|-----------|---|
| CAS              | Chemical Abstracts Service           | UN        | The United Nations  |
| PC-STEL          | Short term exposure limit            | OECD      | Organization for Economic Co-operation and Development    |
| PC-TWA           | Time Weighted Average                | IMDG-CODE | International Maritime Dangerous Goods CODE               |
| MAC              | Maximum Allowable Concentration      | IARC      | International Agency for Research on Cancer               |
| DNEL             | Derived No Effect Level              | ICAO      | International Civil Aviation Organization                 |
| PNEC             | Predicted No Effect Concentration    | IATA      | International Air Transportation Association              |
| NOEC             | No Observed Effect Concentration     | ACGIH     | American Conference of Governmental Industrial Hygienists |
| LC <sub>50</sub> | Lethal Concentration 50%             | NFPA      | National Fire Protection Association                      |
| LD <sub>50</sub> | Lethal Dose 50%                      | NTP       | National Toxicology Program                               |
| EC <sub>50</sub> | Effective Concentration 50%          | PBT       | Persistent, Bioaccumulative, Toxic                        |
| EC <sub>x</sub>  | Effective Concentration X%           | vPvB      | very Persistent, very Bioaccumulative                     |
| P <sub>OW</sub>  | Partition coefficient Octanol: Water | CMR       | Carcinogens, mutagens or substances toxic to reproduction |
| BCF              | Bioconcentration factor              | RPE       | Respiratory Protective Equipment                          |
| ED               | Endocrine disruptor                  |           |   |

## Disclaimer

This Safety Data Sheet (SDS) was prepared according to REACH Regulation. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.