

## Safety Data Sheet

# Manganese in seawater

Version : V2.0.0.1

Report No. : BWB2634-2016-MSDS-EP

Creation Date : 2025/12/30

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              | Manganese in seawater    |
| Cat No.                   | BWB2634-2016             |
| 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

According to Regulation (EC) No 1272/2008 and its amendments. Not classified as a dangerous substance.

### 2.2 Label elements

|                   |                |
|-------------------|----------------|
| Hazard pictograms | Not applicable |
| Signal word       | Not applicable |

### Hazard statements

|                          |                |
|--------------------------|----------------|
| <b>Hazard statements</b> | Not applicable |
|--------------------------|----------------|

## Precautionary statements

### ◆ Prevention

|                   |                |
|-------------------|----------------|
| <b>Prevention</b> | Not applicable |
|-------------------|----------------|

### ◆ Response

|                 |                |
|-----------------|----------------|
| <b>Response</b> | Not applicable |
|-----------------|----------------|

### ◆ Storage

|                |                |
|----------------|----------------|
| <b>Storage</b> | Not applicable |
|----------------|----------------|

### ◆ Disposal

|                 |                |
|-----------------|----------------|
| <b>Disposal</b> | Not applicable |
|-----------------|----------------|

## 2.3 Other hazards

### ◆ Results of PBT and vPvB assessment

| Component        | Results of PBT and vPvB assessment [according to (EC) No 1907/2006] |
|------------------|---------------------------------------------------------------------|
| <b>Manganese</b> | Not applicable                                                      |

### ◆ Results of endocrine disrupting properties assessment

| Component        | Results of endocrine disrupting properties assessment [according to (EU) No 2017/2100 or (EU) No 2018/605] |
|------------------|------------------------------------------------------------------------------------------------------------|
| <b>Manganese</b> | Insufficient information, temporarily unable to evaluate                                                   |

### ◆ Other

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

## 3 Composition/information on ingredients

### 3.1 Substance

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

### 3.2 Mixture

| Component                                                              | Weight % content(or range) | Classification according to Regulation ( EC ) No. 1272/2008 with amendment 2023/707 [CLP] | Specific Conc. Limits, M-factors |
|------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------|----------------------------------|
| <b>Seawater</b><br>CAS : /<br>EC : /<br>Index No. : -                  | 99.99                      | No information available                                                                  | -                                |
| <b>Manganese</b><br>CAS : 7439-96-5<br>EC : 231-105-1<br>Index No. : - | 0.01                       | 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>   | Use extinguishing media suitable for surrounding area.                 |
| <b>Unsuitable extinguishing media</b> | There is no restriction on the type of extinguisher which may be used. |

## 5.2 Specific hazards arising from the substance or mixture

|   |                                                                                   |
|---|-----------------------------------------------------------------------------------|
| 1 | Development of hazardous combustion gases or vapor possible in the event of fire. |
| 2 | 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 | Use personal protective equipment, do not breathe gas/mist/vapour/spray.                                            |
| 2 | Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. |
| 3 | 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 | Cut off the source of the leak as much as possible. |
|---|-----------------------------------------------------|

|   |                                                                                                                             |
|---|-----------------------------------------------------------------------------------------------------------------------------|
| 2 | Keep leaks in a ventilated place.                                                                                           |
| 3 | Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.    |
| 4 | Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.                                        |
| 5 | 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> |
| Manganese | Japan -<br>JSOH(2024-2025) | -                         | 0.02(respirable particles, as Mn) | -                        | -                 |
|           | Japan -<br>JSOH(2024-2025) | -                         | 0.1(total particulate, as Mn)     | -                        | -                 |

|  |                                                             |   |         |   |         |
|--|-------------------------------------------------------------|---|---------|---|---------|
|  | Permissible exposure standards for workers in the workplace | - | 1(fume) | - | 2(fume) |
|  | European Union                                              | - | 0.2     | - | -       |
|  | France                                                      | - | 0.2     | - | -       |
|  | Germany (AGS)                                               | - | 0.02    | - | 0.16    |

◆ Biological limit values

|                                |                         |
|--------------------------------|-------------------------|
| <b>Biological limit values</b> | No relevant regulations |
|--------------------------------|-------------------------|

◆ 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) |
| Seawater  | 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          |
| Manganese | Inhalation        | No data available     | No data available        | No data available       | 0.0101 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                                |
|-----------|--------------|----------------|----------|------------------------------|------------------------------|----------------------|---------------------------|----------------------------------|
| Manganese | 22 - 34 µg/L | 2.2 - 3.4 µg/L | 100 mg/L | 108 - 3300 µg/kg sediment dw | 10.8 - 340 µg/kg sediment dw | No hazard identified | 8.74 - 3400 µg/kg soil dw | No potential for bioaccumulation |

**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> | No special requirements, please see the description below. |
|----------------------------|------------------------------------------------------------|

|                                 |                                                                                                                                                                                           |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye protection</b>           | In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.                                       |
| <b>Hand protection</b>          | In general situation, hand protection is not needed.                                                                                                                                      |
| <b>Respiratory protection</b>   | In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask. |
| <b>Skin and body protection</b> | In general situation, skin and body protection are not needed.                                                                                                                            |

### 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

|                                                    |                                                                                 |
|----------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Physical state</b>                              | colorless to pale yellow transparent liquid                                     |
| <b>Colour</b>                                      | colorless to pale yellow transparent liquid                                     |
| <b>Odor</b>                                        | No information available                                                        |
| <b>Odor threshold</b>                              | No information available                                                        |
| <b>pH</b>                                          | No information available                                                        |
| <b>Melting point/freezing point(°C)</b>            | No information available                                                        |
| <b>Initial boiling point and boiling range(°C)</b> | >35                                                                             |
| <b>Flash point(Closed cup, °C)</b>                 | No information available                                                        |
| <b>Evaporation rate</b>                            | No information available                                                        |
| <b>Flammability</b>                                | No information available                                                        |
| <b>Upper/lower explosive limits[% (v/v)]</b>       | Upper limit : No information available ; Lower limit : No information available |
| <b>Vapor pressure</b>                              | No information available                                                        |
| <b>Vapor density(Air = 1)</b>                      | No information available                                                        |
| <b>Relative density(Water=1)</b>                   | No information available                                                        |
| <b>Solubility</b>                                  | No information available                                                        |
| <b>n-octanol/water partition coefficient</b>       | No information available                                                        |
| <b>Auto-ignition temperature(°C)</b>               | No information available                                                        |
| <b>Decomposition temperature(°C)</b>               | No information available                                                        |
| <b>Kinematic viscosity</b>                         | No information available                                                        |
| <b>Explosive properties</b>                        | No information available                                                        |
| <b>Oxidizing properties</b>                        | No information available                                                        |
| <b>Particle characteristics</b>                    | Not applicable                                                                  |

### 9.2 Other information

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

|                                                           |                          |
|-----------------------------------------------------------|--------------------------|
| <b>Information with regard to physical hazard classes</b> | No information available |
|-----------------------------------------------------------|--------------------------|

#### 9.2.2 Other safety characteristics

|                                     |                          |
|-------------------------------------|--------------------------|
| <b>Other safety characteristics</b> | No information available |
|-------------------------------------|--------------------------|

## 10 Stability and reactivity

### | Stability and reactivity

|                                                |                                                                                                      |
|------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>10.1 Reactivity</b>                         | Contact with incompatible substances can cause decomposition or other chemical reactions.            |
| <b>10.2 Chemical stability</b>                 | Stable under proper operation and storage conditions.                                                |
| <b>10.3 Possibility of hazardous reactions</b> | Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire.             |
| <b>10.4 Conditions to avoid</b>                | Incompatible materials, heat, flame and spark.                                                       |
| <b>10.5 Incompatible materials</b>             | Halogen, interhalogen, strong oxidant, water and acids.                                              |
| <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

| Manganese in seawater                |                                                                  |
|--------------------------------------|------------------------------------------------------------------|
| <b>Skin corrosion/irritation</b>     | Based on available data, the classification criteria are not met |
| <b>Serious eye damage/irritation</b> | Based on available data, the classification criteria are not met |
| <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>Manganese</b> | 9000mg/kg(Rat)          | No information available  | No information available         |

### | Carcinogenicity

| Component        | List of carcinogens by the IARC Monographs | Report on Carcinogens by NTP |
|------------------|--------------------------------------------|------------------------------|
| <b>Seawater</b>  | Not Listed                                 | Not Listed                   |
| <b>Manganese</b> | Not Listed                                 | Not Listed                   |

### | 11.2 Information on other hazards

#### | 11.2.1 Endocrine disrupting properties

| Component        | Endocrine disrupting properties |
|------------------|---------------------------------|
| <b>Manganese</b> | No information available        |

#### | 11.2.2 Other Information

|                          |                  |
|--------------------------|------------------|
| <b>Other Information</b> | See Section 11.1 |
|--------------------------|------------------|

## 12 Ecological information

### 12.1 Toxicity

#### Acute aquatic toxicity

| Component | Fish                                       | Crustaceans                                     | Algae or other aquatic plants |
|-----------|--------------------------------------------|-------------------------------------------------|-------------------------------|
| Manganese | LC <sub>50</sub> : 1800mg/L<br>(96h)(Fish) | EC <sub>50</sub> : 40mg/L<br>(48h)(Crustaceans) | No information available      |

#### Chronic aquatic toxicity

|                          |                          |
|--------------------------|--------------------------|
| Chronic aquatic toxicity | No information available |
|--------------------------|--------------------------|

### 12.2 Persistence and degradability

|                               |                          |
|-------------------------------|--------------------------|
| Persistence and degradability | No information available |
|-------------------------------|--------------------------|

### 12.3 Bioaccumulative potential

|                           |                          |
|---------------------------|--------------------------|
| Bioaccumulative potential | No information available |
|---------------------------|--------------------------|

### 12.4 Mobility in soil

|                  |                          |
|------------------|--------------------------|
| Mobility in soil | No information available |
|------------------|--------------------------|

### 12.5 Results of PBT and vPvB assessment

| Component | Results of PBT and vPvB assessment [according to (EC) No 1907/2006] |
|-----------|---------------------------------------------------------------------|
| Manganese | Not applicable                                                      |

### 12.6 Endocrine disrupting properties

| Component | Endocrine disrupting properties |
|-----------|---------------------------------|
| Manganese | 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 | Not applicable |
|--------------------|----------------|

### IMDG-CODE

|           |                                                |
|-----------|------------------------------------------------|
| IMDG-CODE | NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS |
|-----------|------------------------------------------------|

**IATA-DGR**

|                 |                                                |
|-----------------|------------------------------------------------|
| <b>IATA-DGR</b> | NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS |
|-----------------|------------------------------------------------|

**UN-ADR**

|               |                                                |
|---------------|------------------------------------------------|
| <b>UN-ADR</b> | NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS |
|---------------|------------------------------------------------|

**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 |
|------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <b>Seawater</b>  | × | × | × | × | × | × | × | × | × | × | × | × | × |
| <b>Manganese</b> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

- [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 |
|------------------|---|---|---|
| <b>Seawater</b>  | × | × | × |
| <b>Manganese</b> | × | × | × |

- [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 |
|-----------|---|---|---|---|---|---|---|---|---|
| Seawater  | × | × | × | × | × | × | × | × | × |
| Manganese | × | × | × | ✓ | ✓ | × | × | × | × |

- [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.  
 “×” No data or not included in the regulations.

**German water hazard class(WGK)**

| Component | WGK   | Remark |
|-----------|-------|--------|
| Manganese | WGK 2 |        |

- 【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 |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Manganese | Chapter 5.2.2 Inorganic dusts. Class III. Also with the presence of several substances of the same class, the following values are in all not allowed to be exceeded in the exhaust gas: Mass flow: 5 g/hr or Mass conc.: 1 mg/m <sup>3</sup> . Specified as Mn. |        |

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

| Component | TRGS                                                                                                                          | Remark |
|-----------|-------------------------------------------------------------------------------------------------------------------------------|--------|
| Manganese | TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 402 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       | 2025/12/30 |
| Revision Date       | -          |
| Reason for revision | -          |

## Reference

- [1] IPCS: The International Chemical Safety Cards (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>.
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## 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.