1 Identification

· Product identifier
· Trade name: OMS-21
· Article number: OMS-21

· Details of the supplier of the safety data sheet
· Manufacturer/Supplier:
  High-Purity Standards
  7221 Investment Drive, North Charleston, SC 29418 United States
  Telephone: +1-843-767-7900
  Fax: +1-843-767-7906
  highpuritystandards.com
  Email: info@highpuritystandards.com

· Information department: Product safety department
· Emergency telephone number:
  INFOTRAC
  Emergency telephone numbers 1-800-535-5053
  Other emergency telephone numbers 1-352-323-3500

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS08 Health hazard
  Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.

· Label elements
· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
· Hazard pictograms
  GHS08

· Signal word Danger
· Hazard-determining components of labeling:
  White mineral oil, petroleum
· Hazard statements
  H304 May be fatal if swallowed and enters airways.
· Precautionary statements
  If swallowed: Immediately call a poison center/doctor.
  Do NOT induce vomiting.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)
Trade name: OMS-21

· Classification system:

· NFPA ratings (scale 0 - 4)

Health = 0
Fire = 1
Reactivity = 0

· HMIS-ratings (scale 0 - 4)

Health = 0
Fire = 1
Reactivity = 0

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.
· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures
· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

<table>
<thead>
<tr>
<th>Chemical identification of the substance/preparation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>8042-47-5 White mineral oil, petroleum</td>
<td>99.58%</td>
</tr>
</tbody>
</table>

· Chemical identification of the substance/preparation

<table>
<thead>
<tr>
<th>Chemical identification of the substance/preparation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7429-90-5 aluminium</td>
<td>0.02%</td>
</tr>
<tr>
<td>7439-89-6 iron</td>
<td>0.02%</td>
</tr>
<tr>
<td>7439-92-1 lead</td>
<td>0.02%</td>
</tr>
<tr>
<td>7439-95-4 magnesium</td>
<td>0.02%</td>
</tr>
<tr>
<td>7439-96-5 manganese</td>
<td>0.02%</td>
</tr>
<tr>
<td>7439-98-7 molybdenum</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-02-0 nickel</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-21-3 silicon</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-22-4 silver</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-23-5 sodium</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-31-5 tin</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-32-6 titanium</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-39-3 barium</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-42-8 boron</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-43-9 cadmium</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-47-3 chromium</td>
<td>0.02%</td>
</tr>
<tr>
<td>7440-50-8 copper</td>
<td>0.02%</td>
</tr>
</tbody>
</table>
Trade name: OMS-21

7440-62-2 vanadium 0.02%
7440-66-6 zinc 0.02%
7440-70-2 calcium 0.02%
7723-14-0 phosphorus 0.02%

4 First-aid measures

· Description of first aid measures
  · After inhalation: Supply fresh air; consult doctor in case of complaints.
  · After skin contact: Generally the product does not irritate the skin.
  · After eye contact: Rinse opened eye for several minutes under running water.
  · After swallowing: If symptoms persist consult doctor.
  · Information for doctor:
    · Most important symptoms and effects, both acute and delayed No further relevant information available.
    · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

· Extinguishing media
  · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
  · Special hazards arising from the substance or mixture No further relevant information available.
  · Advice for firefighters
  · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.
  · Environmental precautions:
    Dilute with plenty of water.
    Do not allow to enter sewers/ surface or ground water.
  · Methods and material for containment and cleaning up:
    Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
    Dispose contaminated material as waste according to item 13.
  · Reference to other sections
    See Section 7 for information on safe handling.
    See Section 8 for information on personal protection equipment.
    See Section 13 for disposal information.
  · Protective Action Criteria for Chemicals

· PAC-1:
  7439-89-6 iron 3.2 mg/m³
  7439-92-1 lead 0.15 mg/m³
### Trade name: OMS-21

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-95-4</td>
<td>magnesium</td>
<td>18 mg/m³</td>
</tr>
<tr>
<td>7439-96-5</td>
<td>manganese</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>7439-98-7</td>
<td>molybdenum</td>
<td>30 mg/m³</td>
</tr>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
<td>4.5 mg/m³</td>
</tr>
<tr>
<td>7440-21-3</td>
<td>silicon</td>
<td>45 mg/m³</td>
</tr>
<tr>
<td>7440-22-4</td>
<td>silver</td>
<td>0.3 mg/m³</td>
</tr>
<tr>
<td>7440-23-5</td>
<td>sodium</td>
<td>13 mg/m³</td>
</tr>
<tr>
<td>7440-31-5</td>
<td>tin</td>
<td>6 mg/m³</td>
</tr>
<tr>
<td>7440-32-6</td>
<td>titanium</td>
<td>30 mg/m³</td>
</tr>
<tr>
<td>7440-39-3</td>
<td>barium</td>
<td>1.5 mg/m³</td>
</tr>
<tr>
<td>7440-42-8</td>
<td>boron</td>
<td>1.9 mg/m³</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium</td>
<td>0.10 mg/m³</td>
</tr>
<tr>
<td>7440-47-3</td>
<td>chromium</td>
<td>1.5 mg/m³</td>
</tr>
<tr>
<td>7440-50-8</td>
<td>copper</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>7440-62-2</td>
<td>vanadium</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>7440-66-6</td>
<td>zinc</td>
<td>6 mg/m³</td>
</tr>
<tr>
<td>7723-14-0</td>
<td>phosphorus</td>
<td>0.27 mg/m³</td>
</tr>
</tbody>
</table>

**PAC-2:**

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-89-6</td>
<td>iron</td>
<td>35 mg/m³</td>
</tr>
<tr>
<td>7439-92-1</td>
<td>lead</td>
<td>120 mg/m³</td>
</tr>
<tr>
<td>7439-95-4</td>
<td>magnesium</td>
<td>200 mg/m³</td>
</tr>
<tr>
<td>7439-96-5</td>
<td>manganese</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td>7439-98-7</td>
<td>molybdenum</td>
<td>330 mg/m³</td>
</tr>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td>7440-21-3</td>
<td>silicon</td>
<td>100 mg/m³</td>
</tr>
<tr>
<td>7440-22-4</td>
<td>silver</td>
<td>170 mg/m³</td>
</tr>
<tr>
<td>7440-23-5</td>
<td>sodium</td>
<td>140 mg/m³</td>
</tr>
<tr>
<td>7440-31-5</td>
<td>tin</td>
<td>67 mg/m³</td>
</tr>
<tr>
<td>7440-32-6</td>
<td>titanium</td>
<td>330 mg/m³</td>
</tr>
<tr>
<td>7440-39-3</td>
<td>barium</td>
<td>180 mg/m³</td>
</tr>
<tr>
<td>7440-42-8</td>
<td>boron</td>
<td>21 mg/m³</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium</td>
<td>0.76 mg/m³</td>
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<tr>
<td>7440-47-3</td>
<td>chromium</td>
<td>17 mg/m³</td>
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<td>7440-50-8</td>
<td>copper</td>
<td>33 mg/m³</td>
</tr>
<tr>
<td>7440-62-2</td>
<td>vanadium</td>
<td>5.8 mg/m³</td>
</tr>
<tr>
<td>7440-66-6</td>
<td>zinc</td>
<td>21 mg/m³</td>
</tr>
<tr>
<td>7723-14-0</td>
<td>phosphorus</td>
<td>3 mg/m³</td>
</tr>
</tbody>
</table>
Safety Data Sheet
acc. to OSHA HCS

Printing date 03/12/2020
Reviewed on 06/21/2018

Trade name: OMS-21

7 PAC-3:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Compound</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-89-6</td>
<td>iron</td>
<td>150 mg/m³</td>
</tr>
<tr>
<td>7439-92-1</td>
<td>lead</td>
<td>700 mg/m³</td>
</tr>
<tr>
<td>7439-95-4</td>
<td>magnesium</td>
<td>1,200 mg/m³</td>
</tr>
<tr>
<td>7439-96-5</td>
<td>manganese</td>
<td>1,800 mg/m³</td>
</tr>
<tr>
<td>7439-98-7</td>
<td>molybdenum</td>
<td>2,000 mg/m³</td>
</tr>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
<td>99 mg/m³</td>
</tr>
<tr>
<td>7440-21-3</td>
<td>silicon</td>
<td>630 mg/m³</td>
</tr>
<tr>
<td>7440-22-4</td>
<td>silver</td>
<td>990 mg/m³</td>
</tr>
<tr>
<td>7440-23-5</td>
<td>sodium</td>
<td>870 mg/m³</td>
</tr>
<tr>
<td>7440-31-5</td>
<td>tin</td>
<td>400 mg/m³</td>
</tr>
<tr>
<td>7440-32-6</td>
<td>titanium</td>
<td>2,000 mg/m³</td>
</tr>
<tr>
<td>7440-39-3</td>
<td>barium</td>
<td>1,100 mg/m³</td>
</tr>
<tr>
<td>7440-42-8</td>
<td>boron</td>
<td>130 mg/m³</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium</td>
<td>4.7 mg/m³</td>
</tr>
<tr>
<td>7440-47-3</td>
<td>chromium</td>
<td>99 mg/m³</td>
</tr>
<tr>
<td>7440-50-8</td>
<td>copper</td>
<td>200 mg/m³</td>
</tr>
<tr>
<td>7440-62-2</td>
<td>vanadium</td>
<td>35 mg/m³</td>
</tr>
<tr>
<td>7440-66-6</td>
<td>zinc</td>
<td>120 mg/m³</td>
</tr>
<tr>
<td>7723-14-0</td>
<td>phosphorus</td>
<td>18 mg/m³</td>
</tr>
</tbody>
</table>

7 Handling and storage

- Handling:
  - Precautions for safe handling: No special precautions are necessary if used correctly.
  - Information about protection against explosions and fires: No special measures required.
- Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: No special requirements.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
Control parameters

Components with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.

Breathing equipment: Not required.

Protection of hands:
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection: Goggles recommended during refilling.

Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Fluid
Color: Brown
Odor: Characteristic
Odor threshold: Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range: Undetermined.
Boiling point/Boiling range: Undetermined.

Flash point: >112 °C (>233.6 °F)

Flammability (solid, gaseous): Not applicable.

Decomposition temperature: Not determined.
### 5.1.3

- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**
  - **Lower:** Not determined.
  - **Upper:** Not determined.
- **Vapor pressure:** Not determined.
- **Density:** Not determined.
- **Relative density:** Not determined.
- **Vapor density:** Not determined.
- **Evaporation rate:** Not determined.
- **Solubility in / Miscibility with Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - **Dynamic:** Not determined.
  - **Kinematic:** Not determined.
- **Solvent content:**
  - **VOC content:** 0.00 %
  - 0.0 g/l / 0.00 lb/gal
- **Solids content:** 0.4 %
- **Other information**
  - No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
  - **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
  - **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials**
  - No further relevant information available.
- **Hazardous decomposition products**
  - No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
  - **Acute toxicity:**
    - **Primary irritant effect:**
      - **on the skin:** No irritant effect.
      - **on the eye:** No irritating effect.
50.1.3 Sensitization: No sensitizing effects known.

Additional toxicological information: The product shows the following dangers according to internally approved calculation methods for preparations:

Carcinogenic categories

- IARC (International Agency for Research on Cancer)
  - 7439-92-1 lead 2B
  - 7440-02-0 nickel 2B
  - 7440-43-9 cadmium 1
  - 7440-47-3 chromium 3

- NTP (National Toxicology Program)
  - 7439-92-1 lead R
  - 7440-02-0 nickel R
  - 7440-43-9 cadmium K

- OSHA-Ca (Occupational Safety & Health Administration)
  - 7440-43-9 cadmium

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.

- Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.

- Additional ecological information:
  - General notes:
    - Water hazard class 1 (Self-assessment): slightly hazardous for water
    - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
  - Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.
Safety Data Sheet
acc. to OSHA HCS

Trade name: OMS-21

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**
- DOT, ADR, ADN, IMDG, IATA not regulated

- **UN proper shipping name**
- DOT, ADR, ADN, IMDG, IATA not regulated

- **Transport hazard class(es)**
- DOT, ADR, ADN, IMDG, IATA Class not regulated

- **Packing group**
- DOT, ADR, IMDG, IATA not regulated

- **Environmental hazards:** Not applicable.

- **Special precautions for user** Not applicable.

- **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

- **UN "Model Regulation":** not regulated

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**

  - **Sara**

  - **Section 355 (extremely hazardous substances):**
    - 7723-14-0 phosphorus

  - **Section 313 (Specific toxic chemical listings):**
    - 7429-90-5 aluminium
    - 7439-92-1 lead
    - 7439-96-5 manganese
    - 7440-02-0 nickel
    - 7440-22-4 silver
    - 7440-39-3 barium
    - 7440-43-9 cadmium
    - 7440-47-3 chromium
    - 7440-50-8 copper
    - 7440-62-2 vanadium

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Safety Data Sheet  
acc. to OSHA HCS

Printing date 03/12/2020  
Reviewed on 06/21/2018

Trade name: OMS-21

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-66-6</td>
<td>zinc</td>
</tr>
<tr>
<td>7723-14-0</td>
<td>phosphorus</td>
</tr>
</tbody>
</table>

- **TSCA (Toxic Substances Control Act):**
  - All components have the value ACTIVE.

- **Hazardous Air Pollutants**
  - 7439-92-1 lead
  - 7439-96-5 manganese
  - 7723-14-0 phosphorus

- **Proposition 65**
  - **Chemicals known to cause cancer:**
    - 7439-92-1 lead
    - 7440-02-0 nickel
    - 7440-43-9 cadmium
  - **Chemicals known to cause reproductive toxicity for females:**
    - 7439-92-1 lead
  - **Chemicals known to cause reproductive toxicity for males:**
    - 7439-92-1 lead
    - 7440-43-9 cadmium
  - **Chemicals known to cause developmental toxicity:**
    - 7439-92-1 lead
    - 7440-43-9 cadmium

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    - 7439-92-1 lead B2
    - 7439-96-5 manganese D
    - 7440-22-4 silver D
    - 7440-39-3 barium D, CBD(inh), NL(oral)
    - 7440-42-8 boron I (oral)
    - 7440-43-9 cadmium B1
    - 7440-47-3 chromium D
    - 7440-50-8 copper D
    - 7440-66-6 zinc D, I, II
    - 7723-14-0 phosphorus D

- **TLV (Threshold Limit Value established by ACGIH)**
  - 7429-90-5 aluminium A4
  - 7439-92-1 lead A3
  - 7439-98-7 molybdenum A3

(Contd. on page 11)
Trade name: OMS-21

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>Hazard Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
<td>A5</td>
</tr>
<tr>
<td>7440-39-3</td>
<td>barium</td>
<td>A4</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium</td>
<td>A2</td>
</tr>
<tr>
<td>7440-47-3</td>
<td>chromium</td>
<td>A4</td>
</tr>
</tbody>
</table>

- NIOSH-Ca (National Institute for Occupational Safety and Health)
- GHS label elements: The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

GHS08

- Signal word: Danger
- Hazard-determining components of labeling:
  - White mineral oil, petroleum
- Hazard statements
  - H304 May be fatal if swallowed and enters airways.
- Precautionary statements
  - If swallowed: Immediately call a poison center/doctor.
  - Do NOT induce vomiting.
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing SDS: Environment protection department.
- Contact:
  - High-Purity Standards
  - Tel: 843-767-7900
  - Fax: 843-767-7906
- Date of preparation / last revision: 03/12/2020 / -
- Abbreviations and acronyms:
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
Trade name: OMS-21

ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Asp. Tox. 1: Aspiration hazard – Category 1