1 Identification

· Product identifier

· Trade name: Morpholine 100 µg/mL in H2O

· Article number: IC-MOR

· 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
  The product is not classified, according to the Globally Harmonized System (GHS).

· Label elements

· GHS label elements Void

· Hazard pictograms Void

· Signal word Void

· Hazard statements Void

· Classification system:

· NFPA ratings (scale 0 - 4)
  Health = 0
  Fire = 0
  Reactivity = 0

· HMIS-ratings (scale 0 - 4)
  Health = 0
  Fire = 0
  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: Void

<table>
<thead>
<tr>
<th>Chemical identification of the substance/preparation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5 water, distilled, conductivity or of similar purity</td>
<td>99.99%</td>
</tr>
<tr>
<td>110-91-8 morpholine</td>
<td>0.01%</td>
</tr>
</tbody>
</table>

4 First-aid measures

- Description of first aid measures
- General information: No special measures required.
- 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.
- Methods and material for containment and cleaning up:
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- 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.

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Trade name: Morpholine 100 µg/mL in H2O

- **Protective Action Criteria for Chemicals**
  - **PAC-1:**
    - 110-91-8 morpholine
    - 30 ppm
  - **PAC-2:**
    - 110-91-8 morpholine
    - 1,300 ppm
  - **PAC-3:**
    - 110-91-8 morpholine
    - 8000** ppm

7 Handling and storage

- **Handling:**
  - **Precautions for safe handling**: No special measures required.
  - **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**: None.
  - **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**: The usual precautionary measures for handling chemicals should be followed.
    - **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.
51.0.12

- **Penetration time of glove material**
  The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Goggles recommended during refilling.

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information on basic physical and chemical properties</strong></td>
<td></td>
</tr>
<tr>
<td><strong>General Information</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Appearance:</strong></td>
<td></td>
</tr>
<tr>
<td>Form:</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color:</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor:</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odor threshold:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value:</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Change in condition</strong></td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range:</td>
<td>Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range:</td>
<td>100 °C (212 °F)</td>
</tr>
<tr>
<td><strong>Flash point:</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gaseous):</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Decomposition temperature:</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Auto igniting:</strong></td>
<td>Product is not selfigniting.</td>
</tr>
<tr>
<td><strong>Danger of explosion:</strong></td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td><strong>Explosion limits:</strong></td>
<td></td>
</tr>
<tr>
<td>Lower:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper:</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapor pressure at 20 °C (68 °F):</strong></td>
<td>23 hPa (17.3 mm Hg)</td>
</tr>
<tr>
<td><strong>Density at 20 °C (68 °F):</strong></td>
<td>1 g/cm³ (8.345 lbs/gal)</td>
</tr>
<tr>
<td><strong>Bulk density:</strong></td>
<td>1,000 kg/m³</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Solubility in / Miscibility with Water:</strong></td>
<td>Fully miscible.</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water):</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Viscosity:</strong></td>
<td></td>
</tr>
<tr>
<td>Dynamic:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Kinematic:</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>

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Trade name: Morpholine 100 µg/mL in H2O

- Solvent content:
  - Organic solvents: 0.0 %
  - Water: 100.0 %
  - VOC content: 0.01 %
  - Solids content: 0.0 %

- Other content: 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.
    - Sensitization: No sensitizing effects known.
    - Additional toxicological information:
      - The product is not subject to classification according to internally approved calculation methods for preparations:
      - When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    - 110-91-8 morpholine
  - NTP (National Toxicology Program)
    - None of the ingredients is listed.
  - OSHA-Ca (Occupational Safety & Health Administration)
    - None of the ingredients is listed.
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: Not hazardous for water.
- 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: Smaller quantities can be disposed of with household waste.
- Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
  - DOT, ADR, IMDG, IATA: not regulated

- UN proper shipping name
  - DOT, ADR, 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 MARPOL73/78 and the IBC Code: Not applicable.
Safety Data Sheet
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Printing date 05/21/2020
Reviewed on 05/21/2020

Trade name: Morpholine 100 µg/mL in H2O

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
  Sara
  · Section 355 (extremely hazardous substances):
    None of the ingredients is listed.
  · Section 313 (Specific toxic chemical listings):
    None of the ingredients is listed.
  · TSCA (Toxic Substances Control Act):
    All components have the value ACTIVE.
  · Hazardous Air Pollutants
    None of the ingredients is listed.
  · Proposition 65
    None of the ingredients is listed.
  · Chemicals known to cause cancer:
    None of the ingredients is listed.
  · Chemicals known to cause reproductive toxicity for females:
    None of the ingredients is listed.
  · Chemicals known to cause reproductive toxicity for males:
    None of the ingredients is listed.
  · Chemicals known to cause developmental toxicity:
    None of the ingredients is listed.
  · Carcinogenic categories
    EPA (Environmental Protection Agency)
    None of the ingredients is listed.
  · TLV (Threshold Limit Value established by ACGIH)
    110-91-8 morpholine A4
  · NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.
  · GHS label elements Void
  · Hazard pictograms Void
  · Signal word Void
  · Hazard statements Void
  · 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 05/21/2020 / -
· 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
  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