GPS Safety Summary

Ethylenediamine

This Product Safety Summary is intended to provide a general overview of the chemical substance. It contains basic information and is not intended to provide emergency response information, medical information or treatment information. The summary cannot be relied on to provide in-depth safety and health information. In-depth safety and health information must be obtained from the Material Safety Data Sheet ((M)SDS) for the chemical substance.

Chemical Identity

Name: Ethylenediamine

CAS number: 107-15-3

Molecular formula: C₂H₈N₂

Structure

IUPAC name: Ethane-1,2-diamine

BASF brand names:
EDA
Ethylenediamine

For synonyms see end of document

Uses and Applications

Ethylenediamine is a versatile intermediate, e.g. for the production of bleach activators, chelating agents, crop protection products and polymers. Further applications include the use as corrosion inhibitor.
Health Information

Human Health Safety Assessment

Note: The information contained in the table below may be useful to someone handling the concentrated substance such as a manufacturer or transporter. Consumers are not likely to come in contact with the concentrated substance. The data does not replace the data given in the (M)SDS. For more information and recommended protective measures please refer to the (M)SDS.

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>Of moderate toxicity after single ingestion and after short-term inhalation. Of pronounced toxicity after short-term skin contact.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Corrosive! Damages skin and eyes.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Sensitization after skin contact possible. The substance may also cause sensitization of the respiratory tract.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>In the majority of tests performed a mutagenic effect was not found. The data have been derived in part from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not considered to be carcinogenic. In long-term feeding studies in rats, a carcinogenic effect was not observed. Chemicals with similar structure have been shown to be not carcinogenic after repeated dermal exposure.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>The prominent effect after repeated exposure is local irritation. The data have been derived in parts from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>The results of animal studies gave no indication of a fertility impairing effect. Fetal development was not affected at doses that were not toxic to the parental animals. The data have been derived from products of a similar structure or composition.</td>
</tr>
</tbody>
</table>

Environmental Information

Environment Safety Assessment

Note: The information in this section is intended to provide brief and general information of this substance’s environmental impact. The results in the table below refer to testing performed with the concentrated substance. The data does not replace the data given in the (M)SDS. For more information and recommended protective measures please refer to the (M)SDS.
<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Toxicity</td>
<td>Harmful to aquatic life. The substance has long lasting adverse effects to aquatic life.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Readily biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Not bioaccumulative.</td>
</tr>
</tbody>
</table>

**Physical/Chemical Properties**

**Phys/Chem Safety Assessment**

- Ethylenediamine is a colorless to light yellow liquid substance at ambient temperature, which has a characteristic ammonia-like odor. It is a flammable liquid without explosive properties.

*Note: The results in the table below refer to testing performed with the concentrated substance. The data does not replace the data given in the (M)SDS. For more information and recommended protective measures please refer to the (M)SDS.*

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Melting / freezing point</td>
<td>10.8-11 °C at 1013 hPa</td>
</tr>
<tr>
<td>Boiling point</td>
<td>117 °C at 1013 hPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>38-42 °C at 1013 hPa</td>
</tr>
<tr>
<td>Flammability</td>
<td>Flammable liquid</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non explosive</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>385-405 °C</td>
</tr>
</tbody>
</table>

**Exposure Potential**

- **Workplace exposure:** The Substance is used in industrial and professional applications only. The possible routes of potential exposure of the worker are inhalation and contact with the skin. Workers should follow the recommended safety measures in the (Material) Safety Data Sheet ((M)SDS). Generally a thorough training program for employees and appropriate work processes and safety equipment to limit unnecessary exposure shall be
in place. Exposure of the worker has been assessed. The occupational use of this substance is considered to be safe for the worker following the recommended safety measures given in the (M)SDS.

- **Consumer exposure:** The substance is used in industrial and professional applications only. No indirect exposure via the environment is expected. Therefore, no relevant consumer exposure is expected.

- **Environmental exposure:** An exposure estimation was conducted and all identified uses of the substance were assessed to be safe for the environment. Consequently, all relevant uses are assumed to be adequately controlled. The instructions for proper use given in the (M)SDS or products descriptions have to be read carefully and followed to protect environment. Waste management should be in place. Conclusively, all identified uses are safe for the environment based on the scientific facts summarized above and when carried out in compliance with recommended risk management measures and applicable regulations.

**Recommended Handling Measures**

*The recommended safety measures generally apply in contact with the concentrated substance. It is NOT intended to replace the comprehensive guidance found in the (M)SDS, only supplement it. Please refer to the (M)SDS for specific safety and first aid measures.*

When using concentrated chemicals always make sure that there is adequate ventilation. Always use appropriate chemical resistant gloves to protect your hands and skin and always wear eye protection such as chemical goggles. Do not eat, drink, or smoke where chemicals are handled, processed, or stored. Wash hands and skin following contact. If the substance gets into your eyes, rinse eyes thoroughly for at least 15 minutes with tap water and seek medical attention. For specific advice please consult the corresponding (Material) Safety Data Sheet of the substance.

All effluent releases that may include the substance must be directed to a (municipal) waste water treatment plant that removes the substance from the final releases to the receiving water.

**Regulatory Information / Classification and Labeling**

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the (M)SDS. GHS attempts to
standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

Note: The hazard statements and symbols presented here refer to the hazard properties of the concentrated substance and are meant to provide a brief overview of the substance’s labeling. It is not intended to be comprehensive or to replace information found in the (M)SDS.

Labeling according to UN GHS
UN GHS is the basis for country specific GHS labeling

Signal word:
Danger

Hazard statements:
H226: Flammable liquid and vapor.
H302: Harmful if swallowed.
H311: Toxic in contact with skin.
H314: Causes severe skin burns and eye damage.
H332: Harmful if inhaled.
H317: May cause an allergic skin reaction.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H402: Harmful to aquatic life.
H412: Harmful to aquatic life with long lasting effects.

Additional information

1. IFA GESTIS-database on hazardous substances
   http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp
2. OECD SIDS
3. ECHA information on registered substances
Most commonly used synonyms

» Dimethylenediamine
» 1,2-Ethlenediamine
» β- Aminoethylamine
» 1,2-Diaminoethane
» 1,2-Ethanediamine

Disclaimer

IMPORTANT: While the data and information contained herein are presented in good faith and believed to be accurate at the date of printing, it is provided for your guidance only and may be revised in the future. No warranties of any kind, either express or implied, of merchantability, fitness for a particular purpose or of any other nature are made regarding the data or information provided. Further, it is expressly understood that the data and information furnished by BASF hereunder are given gratis and BASF assumes no obligation or liability whatsoever resulting from use of or reliance on the data and information given.

Contact

For further information on this substance or GPS safety summaries in general, please contact: info.gps@basf.com