GPS Safety Summary

Ethylendiamine, propoxylated

Chemical Identity

Name: Ethylendiamine, propoxylated

CAS number: 25214-63-5

Molecular formula: C\(_2\)H\(_4\)N\(_2\) (C\(_3\)H\(_6\)O)\(_n\)

Structure

![Structure Diagram]

Sum of n \(>\) 1 - \(\approx\) 8.5

Product Uses

Ethylendiamine, propoxylated is a polyether polyol produced by catalyzed addition of monomers propylene oxide to ethylendiamine. Depending on the application polyols of varying molecular weight, functionality, viscosity and reactivity can be produced. The polyether polyols, so produced, are used for preparing formulated systems or are sold to other predominantly industrial users. Ethylendiamine, propoxylated is used for the production of Polyurethanes such as rigid foams as well as a cross-linking agent for flexible and semirigid PUR foams. Furthermore, ethylendiamine, propoxylated is used in coating and sealant products.

IUPAC name:
Ethylendiamine, propoxylated

BASF brand names:
Lupranol 3402
Pluracol Polyol 1598

For synonyms see end of document
Benefits

Polyurethanes are rather a “niche polymer” in comparison to the big plastic commodities. They are tailor made for special uses, where other products, can’t fulfill such high technical performance as Polyurethanes, due to their specific structure. E.g. as flexible foams, Polyurethanes provide high comfort and durability at very low specific density, i.e. light weight, which is very important in terms of energy saving, e.g. in automotive and other transport applications.
As rigid foams, PUR provide high thermal insulation properties at very low density and but excellent compressive strength and thus contribute a significant part to energy saving in construction and appliances.

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, while verifiable, are not intended to be comprehensive nor replace the data found in the (M)SDS.

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>Virtually nontoxic after a single ingestion and after a single skin contact.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Not irritating to the skin.</td>
</tr>
<tr>
<td></td>
<td>Eye contact causes irritation.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Skin sensitizing effects were not observed in animal studies.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>The substance was not mutagenic in bacteria and mammalian cell culture. The statements have been derived in parts from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>The whole of the information available provides no indication of a carcinogenic effect.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>Repeated oral uptake of the substance did not cause substance-related effects. The statements have been derived in part from products of a similar structure or composition.</td>
</tr>
</tbody>
</table>
Toxicity for reproduction

The results of animal studies gave no indication of a fertility impairing effect or a developmental toxic / teratogenic effect were seen in animal studies. The statements have been derived from products of a similar structure or composition.

Environmental Information

Environment Safety Assessment

Note: The information in this chapter 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 contained in this section explain the relative effect of the concentrated substance on the environment, as defined by certain tests.

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Toxicity</td>
<td>With high probability acutely not harmful to aquatic life.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Neither readily nor inherently biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Not bioaccumulative.</td>
</tr>
</tbody>
</table>

Physical/Chemical Properties

Phys/Chem Safety Assessment

Ethylendiamine, propoxylated is a clear and yellow/brownish liquid, with no flammable and explosive properties.

Note: The results in the table below refer to testing performed with the concentrated substance. It is not intended to be comprehensive or to replace information found in 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>&lt; -100° C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>320.6 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>211 °C at 1010 hPa</td>
</tr>
<tr>
<td>Flammability</td>
<td>Non flammable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non explosive</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Exposure Potential

- **Workplace exposure**: Exposure can occur either in an ethylenediamine, propoxylated manufacturing facility or in the various industrial or manufacturing facilities that use ethylenediamine, propoxylated. Those working with ethylenediamine, propoxylated in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, as well as safety equipment in place to limit unnecessary exposure. Safety showers and eye-wash stations should be accessible nearby. Workers should follow the recommended safety measures in the extended Safety Data Sheet (eSDS).

- **Consumer exposure**: Ethylenediamine, propoxylated is used i.e. in coatings, adhesives, and sealants. The concentration of ethylenediamine, propoxylated in consumer products is generally low; therefore ethylenediamine, propoxylated does not pose any hazard to the consumer. However, carefully read and follow the instructions given on product labels for proper use.

- **Environmental exposure**: Though ethylenediamine, propoxylated is neither readily nor inherently biodegradable, the substance is not considered to pose an unacceptable risk for the environment since it is with high probability not harmful to aquatic organisms and it will not accumulate in organisms. In an exposure assessment covering all identified uses it was demonstrated that releases into the environment do not pose a risk to aquatic life. Conclusively, all identified uses of the substance are considered to be safe for the environment.

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

![Warning symbol]

**Signal word:**
Warning

**Hazard statements:**
H319: Causes serious eye irritation

**Additional information**

1. IFA GESTIS-database on hazardous substances

2. Information on registered substance (ECHA)
Most commonly used synonyms

» Propoxylated ethylenediamine
» Ethylenediamine-propylene oxide adduct
» Ethylenediamine-initiated polypropylene glycol

Disclaimer

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.

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Contact

For further information on this substance or GPS safety summaries in general, please contact:
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