GPS Safety Summary
3,6,9,12-Tetraoxotridecanol

Chemical Identity

Name: 3,6,9,12-Tetraoxotridecanol
CAS number: 23783-42-8
Molecular formula: C₉H₂₀O₅

Product Uses

The most significant current uses of 3,6,9,12-tetraoxotridecanol are as components of automotive hydraulic brake fluids, and heat transfer fluids. No other major uses are reported. During processing, 3,6,9,12-tetraoxotridecanol is blended in enclosed equipment with other components to produce formulations that meet performance specifications for brake fluids. These formulations may be further treated or blended with additives to make the hydraulic fluids non-corrosive and stable to decomposition during use.

Benefits

3,6,9,12-tetraoxotridecanol provides high boiling points.
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 single ingestion or skin contact. The statement has been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Not irritating to the skin and eyes. The statement has been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Skin sensitizing effects were not observed in animal studies. The statement has been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>No mutagenic effect was found in various tests with bacteria, mammalian cell culture and mammals. The statement has been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>No adverse effects were observed after repeated exposure in animal studies. The statement has been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>Animal studies gave no indication of a fertility impairing effect and they gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals. The statement has been derived from products of a similar structure or composition.</td>
</tr>
</tbody>
</table>

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 organisms.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Readily biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Accumulation in organisms is not to be expected.</td>
</tr>
</tbody>
</table>

**Physical/Chemical Properties**

**Phys/Chem Safety Assessment**

- 3,6,9,12-tetraoxotridecanol is a colorless to yellowish liquid of noticeable odor. It is non flammable and non- explosive.

*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>-39 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>280 - 350 °C at 1013 hPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>161 °C at 1013 hPa</td>
</tr>
<tr>
<td>Flammability</td>
<td>Non flammable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No explosive properties</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>325 °C at 1013 hPa</td>
</tr>
</tbody>
</table>

**Exposure Potential**

- **Workplace exposure:** Based on the very low toxicity of 3,6,9,12-tetraoxotridecanol exposure via oral and dermal route, and since no inhalation is expected because of the low vapor pressure of this substance, which further implies no generation of aerosols during use, 3,6,9,12-tetraoxotridecanol is considered to be without risk for workers in industrial settings and professional workers. Release of 3,6,9,12-tetraoxotridecanol...
during manufacturing or handling is of no concern for the health of workers since it is considered not to induce any adverse effects at relevant doses. Conclusively, since no hazard was identified for the worker, all identified uses of the substance are assessed as safe for human health at workplace. Nevertheless, workers should follow the recommended safety measures in the extended Safety Data Sheet (eSDS).

- **Consumer exposure:** Consumer may come in contact with 3,6,9,12-tetraoxotridecanol during use in or as functional fluids. For example, home automobile mechanics may be occasionally exposed to 3,6,9,12-tetraoxotridecanol in brake fluids when topping off the brake fluid level in the brake master cylinder. Dermal contact through minor spills is considered to be a greater source of exposure than inhalation, since the substance is not volatile and the operation is of short duration. Exposure is also possible through inhalation of ambient air containing low concentrations of the substance released e.g., through evaporation of brake fluids. Nevertheless, based on the very low toxicity of 3,6,9,12-tetraoxotridecanol exposure via oral and dermal route, and since no inhalation is expected because of the low vapor pressure of this substance, 3,6,9,12-tetraoxotridecanol is considered to be without risk for the consumer. Thus, release of 3,6,9,12-tetraoxotridecanol during handling is of no concern for the health of consumers since consumers will not come into contact with harmful levels of the substance. Conclusively, since no hazard was identified for the consumer, all identified uses of the substance are assessed as safe for human health. Nevertheless consumers should always read product information before use and follow the label/use instructions.

- **Environmental exposure:** 3,6,9,12-tetraoxotridecanol is with high probability not harmful to aquatic organisms and hence the substance is not considered to pose an unacceptable risk for the environment. It will almost entirely be removed by biodegradation during waste water treatment processes. Insignificant amounts that may reach surface waters will not exist in the environment for extended time periods due to degradation by microorganisms. 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

Based on available data, labeling is currently not required.

**Additional information**

1. IFA GESTIS-database on hazardous substances

2. Information on registered substance (ECHA)

3. OECD SIDS
Most commonly used synonyms

» Tetraethylene glycol methyl ether
» Tridecanol, 3,6,9,12-Tetraoxa-
» Tridecan-13-ol, 2,5,8,11-Tetraoxa-
» 3,6,9,12-Tetraoxatridecan-1-ol
» Methyloxetraethyleneglycol
» NSC 345692
» Tetraethylene glycol monomethyl ether
» Methyltetraglykol

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.

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