GPS Safety Summary
Hexamethylene diacrylate

Chemical Identity

Name: Hexamethylene diacrylate (HDDA)
CAS number: 13048-33-4
Molecular formula: C\textsubscript{12}H\textsubscript{18}O\textsubscript{4}

Structure

\[
\begin{array}{c}
\text{O} \\
\text{O} \\
\text{C} \\
\text{O} \\
\text{C} \\
\text{O} \\
\end{array}
\]

Product Uses

HDDA is an acrylic chemical in UV-cured inks, adhesives, sealants and coatings.
HDDA is used as Reactive Diluent in radiation curable systems. Main applications are coatings for furniture & flooring and industrial applications as well as printing inks and overprint varnishes.

Benefits

HDDA contains two polymerizable acrylic groups per molecule, which enable it to form copolymers of, for example, acrylic or methacrylic acids and their salts, amides, esters, vinyl
acetate and styrene. Readily entering into addition reactions, it is also an important feedstock for chemical syntheses.

The polymerizable groups allow the product to be used as a crosslinking component, e. g., in radiation-curable coatings, where it also acts as a reactive thinner. During curing, HDDA becomes part of the polymer structure.

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.</td>
</tr>
<tr>
<td></td>
<td>Of low toxicity after short-term skin contact.</td>
</tr>
<tr>
<td></td>
<td>The inhalation of a highly saturated vapour-air mixture</td>
</tr>
<tr>
<td></td>
<td>represents no acute hazard.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Skin contact causes irritation.</td>
</tr>
<tr>
<td></td>
<td>Eye contact causes irritation.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Sensitization after skin contact possible.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>Not considered to be mutagenic.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>Not considered to be toxic after repeated exposure.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>Not considered to be toxic for reproduction.</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>
</table>

Date of Issue 01. July 2011
Aquatic Toxicity  | Acutely toxic to aquatic organisms.
Persistency and degradability  | Readily biodegradable.
Bioaccumulation potential  | Significant accumulation in organisms is not to be expected.

**Physical/Chemical Properties**

**Phys/Chem Safety Assessment**

- Hexamethylene diacrylate is a clear, colorless and non-flammable liquid with an ester-like odor.

*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>7.8 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>not applicable (At temperatures above 100 °C, the substance polymerises)</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt;110 °C</td>
</tr>
<tr>
<td>Flammability</td>
<td>Non flammable upon ignition</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non explosive</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>235 °C</td>
</tr>
</tbody>
</table>

**Exposure Potential**

- Workplace exposure: Exposure can occur either in a hexamethylene diacrylate manufacturing facility or in the various industrial facilities that use hexamethylene diacrylate. Those working with hexamethylene diacrylate in industrial operations could be exposed during maintenance, sampling, testing, or other procedures. Each industrial facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit 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:** There is no intended use of hexamethylene diacrylate in consumer products. Therefore, a health hazard due to exposure for the consumer is negligible.

- **Environmental exposure:** Hexamethylene diacrylate is readily biodegradable and will therefore be degraded rapidly within the waste water treatment process. Based on this information and on additional hazard data, the substance is not regarded to pose an unacceptable risk for the environment. 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 Labelling

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 labelling. It is not intended to be comprehensive or to replace information found in the (M)SDS.*

Date of Issue: 01. July 2011
Labeling according to UN GHS
UN GHS is the basis for country specific GHS labeling

Signal word:
Warning

Hazard statements:
H313: May be harmful in contact with skin
H315: Causes skin irritation
H317: May cause an allergic skin reaction
H319: Causes serious eye irritation
H401: Toxic to aquatic life

Additional information

1. IFA GESTIS-database on hazardous substances
   http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp

Most commonly used synonyms

» 1,6-Hexanediol diacrylate
» Hexandioldiacrylat
» Hexamethyleneglycol diacrylate
» Actilane 425
» 2-Propenoic acid, 1,6-hexanediyl ester

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