GPS Safety Summary

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid

Chemical Identity

Name: 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid

CAS number: 55818-57-0

Molecular formula: \( C_{27}H_{32}O_{8} + n(C_{18}H_{20}O_{3}) \)

IUPAC name: 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid

BASF brand names:
DGEBADA
DGEBA diacrylate

For synonyms see end of document

Product Uses

DGEBA diacrylate is manufactured by reacting acrylic acid in a batch process with bisphenol A diglycidylether. DGEBA diacrylate is used as main binder in the formulation of UV/EB-cured lacquers and overprint varnishes as well as co-binder in all types of radiation curable pigmented systems.

Benefits

DGEBA diacrylate provides high gloss, imparts excellent reactivity and features outstanding chemical and mechanical fastness properties for all kinds of radiation curable formulations.
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.</td>
</tr>
<tr>
<td></td>
<td>A substance of similar structure is virtually nontoxic after a single skin contact and by inhalation.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Not irritating to the skin and eyes.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Sensitization after skin contact possible.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>The substance was not mutagenic in bacteria, in mammalian cell culture and in a test with mammals.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>No substance-specific organ toxicity was observed after repeated administration of high doses to animals.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>The results of animal studies gave no indication of a fertility impairing effect.</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 life.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Moderately biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Not bioaccumulative.</td>
</tr>
</tbody>
</table>
Physical/Chemical Properties

Phys/Chem Safety Assessment

- DGEBA diacrylate is a clear, colorless and highly viscous liquid at room temperature. 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>-4 °C (glass transition)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>220 °C (decomposition)</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 130 °C</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>465 °C at 1013 hPa</td>
</tr>
</tbody>
</table>

Exposure Potential

- **Workplace exposure:** Exposure can occur either in a DGEBA diacrylate manufacturing facility or in the various industrial or manufacturing facilities that use DGEBA diacrylate. Those working with DGEBA diacrylate 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:** A release of DGEBA diacrylate from the final product is not expected and exposure of consumers during handling of articles can be ruled out. Therefore, a health hazard due to exposure for the consumer is negligible.
Environmental exposure: DGEBA diacrylate 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. DGEBA diacrylate does not accumulate in the food chain. 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:
Warning

Hazard statements:
H317: May cause an allergic skin reaction.

Additional information

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

2. Information on registered substance (ECHA)

Most commonly used synonyms

» Bisphenol A epoxy diacrylate

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: info.gps@basf.com