GPS Safety Summary
Alkyl Ketene Dimer (AKD)

Chemical Identity

Name: Alkyl Ketene Dimer (AKD)
CAS number: 84989-41-3
Molecular formula: not applicable, UVCB

IUPAC name:
2-Oxetanone, 3-C12-16-alkyl-4-C13-17-alkyldiene derivs.

BASF brand names:
Basoplast® 88 conc.
Basoplast® 95 conc.

Product Uses

Alkyl ketene dimers (AKD) are manufactured from fatty acid chlorides (C12-C20) and N, N-dimethylisopropylamine (DMIPA) in an extruder type of reactor. Exothermic formation of ketene and spontaneous dimerization to alkyl ketene dimer (AKD) takes place. AKD is mainly used as an industrial sizing agent for paper to increase the hydrophobic properties of paper.

Benefits

Basoplast® is a well-established range of sizing agents used in the manufacture of printing and writing papers, paperboard, newsprint and paperboard grades. The Basoplast® range encompasses alkyl ketene (AKD), alkyl succinic anhydride (ASA) and polymeric sizing agents, providing excellent control of paper product absorbency. Customers can benefit from optimized parameters such as surface hydrophobicity, absorption of liquids, writability and printability, dimensional stability and runnability of the machine.
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>Virtually nontoxic after a single skin contact.</td>
</tr>
<tr>
<td></td>
<td>These statements have been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Not irritating to the skin and eyes.</td>
</tr>
<tr>
<td></td>
<td>This 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.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>The substance was not mutagenic in bacteria, in mammalian cell culture and in studies with mammals.</td>
</tr>
<tr>
<td></td>
<td>This statement has been derived in parts from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>No substance-specific organotoxicity 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. No indications of a developmental toxic / teratogenic effect were seen in animal studies.</td>
</tr>
<tr>
<td></td>
<td>These statements have been derived in parts 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.
Effect Assessment | Result
---|---
Aquatic Toxicity | With high probability not harmful to aquatic life in the range of water solubility.
Persistence and degradability | Readily biodegradable.
Bioaccumulation potential | Not bioaccumulative.

### Physical/Chemical Properties

**Phys/Chem Safety Assessment**

- **Alkyl Ketene Dimer (AKD)** is an organic, white to pale brown, wax like solid. It is insoluble in water, 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>Solid</td>
</tr>
<tr>
<td>Melting / freezing point</td>
<td>37 - 47 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Decomposes before boiling above 200 °C.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</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 self-igniting</td>
</tr>
</tbody>
</table>

### Exposure Potential

- **Workplace exposure**: Based on the very low toxicity of AKD exposure is considered to be without risk. AKD released during manufacturing or handling is of no concern for the health of workers since it does not induce any adverse effects at relevant doses. Nevertheless, workers should follow the recommended safety measures in the extended Safety Data Sheet (eSDS).

- **Consumer exposure**: Based on the very low toxicity of AKD exposure is considered to be without risk. AKD released during handling is of no concern for the health of consumers since consumers will not come into contact with harmful levels of AKD.
Environmental exposure: AKD is with high probability not harmful to aquatic organisms in the range of its water solubility and hence the substance is not considered to pose an unacceptable risk for the environment. It does not accumulate in organisms and 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
   http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp

2. Information on registered substance (ECHA)

3. BASF Product finder

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