GPS Safety Summary
2-ethylhexyl 4-methoxycinnamate

Chemical Identity

Name: 2-ethylhexyl 4-methoxycinnamate

CAS number: 5466-77-3

Molecular formula: \( \text{C}_{18}\text{H}_{26}\text{O}_3 \)

Structure

![Structure of 2-ethylhexyl 4-methoxycinnamate]

IUPAC name: 2-ethylhexyl 3-(4-methoxyphenyl)acrylate

BASF brand names: Uvinul® MC 80

For synonyms see end of document

Product Uses

2-Ethylhexyl 4-methoxycinnamate is an UVB filter with an absorption range of ca. 280 – 340 nm. Its most common technical function is as a cosmetic ingredient in sunscreen cream and as a stabilizer.

Benefits

2-Ethylhexyl 4-methoxycinnamate is approved worldwide and is globally the most frequently used UVB filter. It has outstanding purity, is odorless, colorless and hence suitable for perfume free formulations. It is an excellent solvent for other solid UV filters and is freely miscible with cosmetic oils.

Date of Issue: 01. July 2011
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. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Not irritating to the skin. Not irritating to the eyes.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Skin sensitizing effects were not observed in animal studies.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Based on current knowledge not considered to be carcinogenic.</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>Animal studies gave no indication of a fertility impairing effect at doses which were not toxic to the parental animals. No indications of a developmental toxic / teratogenic effect were seen in animal studies.</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.

Date of Issue: 01. July 2011
Effect Assessment

<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 in the range of water solubility.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Readily biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Not bioaccumulative.</td>
</tr>
</tbody>
</table>

Physical/Chemical Properties

Phys/Chem Safety Assessment

- 2-ethylhexyl 4-methoxycinnamate is a pale yellow liquid with a slight 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>-68.15 °C at 1013 hPa</td>
</tr>
<tr>
<td>Boiling point</td>
<td>382 °C at 1013 hPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>204 °C at 1013 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>392 °C at 977°C-1013 hPa</td>
</tr>
</tbody>
</table>

Exposure Potential

- Workplace exposure: Based on the low toxicological potential of 2-ethylhexyl 4-methoxycinnamate exposure is considered to be of low risk. 2-ethylhexyl 4-methoxycinnamate released during manufacturing or handling is of no concern for the health of workers since it does not induce any adverse effects at such doses. Nevertheless, workers should follow the recommended safety measures in the extended Safety Data Sheet (eSDS).

- Consumer exposure: 2-ethylhexyl 4-methoxycinnamate released during handling is of no concern for the health of consumers since consumers will not come into contact with
harmful levels of 2-ethylhexyl 4-methoxycinnamate. Due to its low toxicity, 2-ethylhexyl 4-methoxycinnamate has been regulatorily approved as UV filter in cosmetics. Nevertheless consumers should always read product information before use and follow the label/use instructions.

- **Environmental exposure:** 2-ethylhexyl 4-methoxycinnamate 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 to the environment. The substance is readily biodegradable and will therefore be degraded within the wastewater treatment process. Furthermore, no bioaccumulation in organisms is expected. 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


Most commonly used synonyms

» 2-Propenoic acid, 3-(4-methoxyphenyl)-, 2-ethylhexyl 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.

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Contact

For further information on this substance or GPS safety summaries in general, please contact: info.gps@basf.com