GPS Safety Summary
Di-isononylphthalate

Chemical Identity

Name: Di-isononylphthalate

CAS number: 28553-12-0

Molecular formula: $\text{C}_{26}\text{H}_{42}\text{O}_4$

Structure:

![Structure Diagram]

IUPAC name: Di-isononylphthalate

BASF brand names:
- Palatinol® N
- Diisononyl phthalate
- DINP

For synonyms see end of document

Product Uses

Di-isononylphthalate is a branched phthalate which is used as a primary plasticizer that imparts beneficial application properties to plasticized vinyl articles. It is applied in the manufacture of film for the housing and construction markets, cables and insulation material for the electrical industry and is suitable for plastisols including spray coating, dipping, casting, or slush molding. Additionally, it is part of adhesives and printing inks.

Benefits

Di-isononylphthalate has a good compatibility with vinyl, and no sweating occurs even in high concentrations. Its presence in vinyl compounds provides good low temperature performance coupled with excellent rheological properties in plastisols. The unique nature of this ester results in lower volatility, low viscosity, good viscosity stability and improved processibility. The excellent resistance to water and outdoor exposure by vinyl plasticized with di-
isononylphthalate is an advantage in the manufacture of film for the housing and construction markets.

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 and after a single skin contact. The inhalation of a highly enriched/saturated vapor-air-mixture represents an unlikely acute hazard.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Not irritating to the skin and eyes.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Skin sensitizing effects were not observed in animal studies.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>No mutagenic effect was found in various tests with bacteria and mammalian cell culture. The substance was not mutagenic in a test with mammals.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>In long-term studies in rodents exposed to high doses, a tumorigenic effect was found; however, these results are thought to be due to a rodent-specific liver effect that is not relevant to humans.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>Repeated exposure to high doses of the substance causes reversible liver changes in rodents. According to present knowledge, these effects do not occur in man. Effects on the kidney of male rats were detected after repeated exposure. These effects are specific for the male rat and are known to be of no relevance to humans.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>The results of animal studies gave no indication of a fertility impairing effect. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.</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 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

- Di-isononylphthalate is a colorless, clear liquid with a slight odor. The substance is not explosive, not flammable and resistant to water.

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>The pour point for Di-isononyl phthalate is &lt; -50 °C.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>&gt; 300 °C at 1013 hPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>236 °C at 1013 hPa</td>
</tr>
<tr>
<td>Flammability</td>
<td>Does not ignite.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive.</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>400 °C at 1013 hPa</td>
</tr>
</tbody>
</table>
Exposure Potential

➢ **Workplace exposure:** Based on the very low toxicity of di-isononylphthalate, exposure is considered to be without risk. Di-isononylphthalate 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 di-isononylphthalate exposure is considered to be without risk. Di-isononylphthalate released during handling is of no concern for the health of consumers since consumers will not come into contact with harmful levels of di-isononylphthalate. Nevertheless consumers should always read the available product information before use and follow the label/use instructions.

➢ **Environmental exposure:** Di-isononylphthalate 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. Di-isononylphthalate will almost entirely be removed by biodegradation during waste water treatment processes and it does not accumulate in organisms. 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. Product Finder (BASF)  

**Most commonly used synonyms**

» Phthalsäurediisononylster
» 1,2-Benzenedicarboxylic acid diisononyl 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