GPS Safety Summary
Phthalic anhydride

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. This information must be obtained from the Material Safety Data Sheet ((M)SDS) for this chemical substance. Before handling or using phthalic anhydride the relevant (M)SDS has to be consulted.

Chemical Identity

Name: Phthalic anhydride
CAS number: 85-44-9
Molecular formula: C₈H₄O₃
Structure:

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Product Description and Uses

Molten phthalic anhydride has a penetrating odor and its vapors irritate the eyes and mucous membranes. Solid phthalic anhydride is in the form of colorless acircular crystals or flakes and has a faint aromatic odour. Phthalic anhydride is readily soluble in organic solvents and is hydrolyzed by water in a strongly exothermic reaction. Feedstock for the production of plasticizers and polyester resins, as well as intermediate for organic syntheses.
### Health Information

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute Toxicity</strong></td>
<td>Of moderate toxicity after single ingestion. Virtually nontoxic after single skin contact and short-term inhalation.</td>
</tr>
<tr>
<td><strong>Irritation</strong></td>
<td>Skin contact causes irritation. May cause severe damage to the eyes. Causes temporary irritation of the respiratory tract.</td>
</tr>
<tr>
<td><strong>Sensitization</strong></td>
<td>Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract.</td>
</tr>
<tr>
<td><strong>Mutagenicity</strong></td>
<td>No mutagenic effect was found in various tests with bacteria and mammalian cell culture.</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td>In long-term studies with animals in which the substance was given by feed, a carcinogenic effect was not observed.</td>
</tr>
<tr>
<td><strong>Toxicity after repeated exposure</strong></td>
<td>No substance-specific organotoxicity was observed after repeated administration of high doses to animals.</td>
</tr>
<tr>
<td><strong>Toxicity for reproduction</strong></td>
<td>Repeated oral uptake of the substance did not cause damage to the reproductive organs. No indications of a developmental toxic / teratogenic effect were seen in animal studies with products of a similar structure or composition.</td>
</tr>
</tbody>
</table>

Note: For more information on the health hazards of this substance and recommended protective equipment, please refer to the relevant (M)SDS

### Environmental Information

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aquatic Toxicity</strong></td>
<td>With high probability acutely not harmful to aquatic organisms.</td>
</tr>
<tr>
<td><strong>Persistence and degradability</strong></td>
<td>Readily biodegradable. In contact with water the substance will hydrolyze rapidly.</td>
</tr>
<tr>
<td><strong>Bioaccumulation potential</strong></td>
<td>Accumulation in organisms is not to be expected.</td>
</tr>
</tbody>
</table>

Note: For more information on the environmental hazards of this substance and recommended measures, please refer to the (M)SDS

Date of Issue: March 2012
Physical/Chemical Properties

Phys/Chem Safety Assessment

- Phthalic anhydride is readily soluble in organic solvents and is hydrolyzed by water in a strongly exothermic reaction.

<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>131.6 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>284.5 °C at 1013 hPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>152 °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>580 °C</td>
</tr>
</tbody>
</table>

Note: For further information, see the relevant (M)SDS

Exposure Potential

Phthalic anhydride is a chemical intermediate. Although BASF does not sell this substance for direct consumer use or directly to consumers, the public at large or consumers may be exposed to it from processing or use as a raw material for a variety of goods used by consumers or professionals. Based on the uses of this substance the public could be exposed through:

- **Workplace exposure**: Exposure can occur either in a phthalic anhydride manufacturing facility or in the various industrial or manufacturing facilities that use phthalic anhydride. Worker exposure is limited by the use of enclosed processing systems, industrial hygiene controls and personal protective equipment. Each industrial facility should, however, have a thorough training program for employees and appropriate work processes, as well as safety equipment in place to limit exposure. Workers should follow the recommended safety measures in the relevant M(SDS).

- **Consumer exposure**: There is no intended use of phthalic anhydride in consumer products. Therefore, an exposure for the consumer is negligible.
- Environmental exposure: Phthalic anhydride and its hydrolysis product phthalic acid are both readily biodegradable and will therefore be degraded within the wastewater treatment process. The substances are with high probability acutely not harmful to aquatic organisms and are not expected to accumulate in organisms. 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

Before handling or using this substance, please consult the relevant (M)SDS. It contains the required handling measures, emergency response information, medical information or treatment information.

Regulatory Information / Classification and Labeling

Regulations exist that govern manufacture, sales, transportation, use and disposal of phthalic anhydride. These regulations may vary by city, state, country or geographic region. Information on these issues may be found in the relevant (M)SDS.

Phthalic anhydride was registered under REACH Regulation in the EU.

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.

Labeling according to UN GHS
UN GHS is the basis for country specific GHS labeling

Signal Word: Danger
Hazard Statements:
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.

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. OECD SIDS
   http://www.inchem.org/pages/sids.html

Most commonly used synonyms

- 1,3-Isobenzofurandione
- 1,2-Benzenedicarboxylic anhydride

Disclaimer

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