GPS Safety Summary  
**Melamine**

**Chemical Identity**

Name: Melamine  
CAS number: 108-78-1  
Molecular formula: C₃H₆N₆

**IUPAC name:**  
1,3,5-triazine-2,4,6-triamine

**BASF brand names:**  
Melamine

**Structure**

![Melamine structure](image)

**Product Uses**

Melamine is used as a monomer for the production of various polymers. These polymers are used e.g. for the manufacturing of surfaces for furniture like bookshelves, laminates or kitchen worktops; in the production of waterproof wood-based panels; as binders in surface coatings for cars and household appliances; as fluidity regulators for concrete; for the production of moulding compounds. Melamine is used as flame-retardant for plastics, like e.g. foamed thermoplastics used e.g. in foamed mattresses. As an intermediate melamine is used e.g. for the production of fibers, which are resistant against fire, heat and chemicals.

**Benefits**

Melamine enables the production of a large number of products, used where temperature and humidity resistance as well as hardness and scratch resistance are needed.
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 non-toxic after single ingestion and short-term inhalation.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Not irritating to 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>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>The observed kidney tumors in rats are regarded as a consequence of a species-specific mechanism and thus not relevant for humans.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>The substance may cause damage to the kidney after repeated ingestion of high doses, as shown in animal studies.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>Not considered to be toxic for reproduction.</td>
</tr>
<tr>
<td></td>
<td>No indications of developmental/teratogenic effects 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.

<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.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Poorly biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Not bioaccumulative.</td>
</tr>
</tbody>
</table>
Physical/Chemical Properties

Phys/Chem Safety Assessment

➢ Melamine is a white powdered substance. 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>Solid</td>
</tr>
<tr>
<td>Melting point</td>
<td>361 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not applicable. Substance decomposes before boiling</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>&gt; 400 °C</td>
</tr>
</tbody>
</table>

Exposure Potential

➢ **Workplace exposure:** Based on its otherwise very low toxicity, exposure for workers is considered to be without risk. Melamine 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:** Since melamine is not used as an ingredient for food or feed under REACH oral uptake is not considered to be a relevant exposure scenario. Based on the very low toxicity of melamine exposure is considered to be without risk. Melamine released during handling is of no concern for the health of consumers since consumers will not come into contact with harmful levels of melamine. Nevertheless consumers should always read product information before use and follow the label/use instructions.
Environmental exposure: Though melamine is not biodegradable, it is not considered to pose an unacceptable risk for the environment. Melamine is with high probability not harmful to aquatic organisms and it does not 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

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. OECD SIDS  

**Most commonly used synonyms**

- 1,3,5-Triazine-2,4,6-triamine (9CI)
- Cyanurotriamide
- 2,4,6-Triamino-s-triazine
- Cyanurotriamine
- Isomelamine
- Triaminotriazine
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-triimine
- 2,4,6-Triamino-1,3,5-triazine
- Cyanuramide
- 2,4,6-Triaminotriazine

**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