GPS Safety Summary

Sodium formate

Chemical Identity

Name: Sodium formate

CAS number: 141-53-7

Molecular formula: \( \text{CHO}_2\text{Na} \)

Structure

\[
\begin{array}{c}
\text{O} \\
\text{O} \\
\text{Na}^+
\end{array}
\]

IUPAC name: sodium formate

BASF brand names: Formic acid

Product Uses

Sodium formate can be formed as a by-product in the process of hydrolyzing N-formyl-polyvinylamines to polyvinylamines with sodium hydroxide in aqueous solution. Another possibility is a partly neutralization of formic acid with caustic soda whereby sodium formate and water is formed. Its most common technical functions include its use as pH-regulating agent, as process regulator or processing aid in processes other than polymerization or vulcanization, as intermediate, as silage additive, as preservative agent in feed and it is used in industrial settings in paper manufacturing processes.

Benefits

Using the buffered formic acid - sodium formate – reduces the biological activity from corrosive to irritant. Thus products containing sodium formate instead of formic acid are more user-friendly to handle.
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>Virtually nontoxic by inhalation.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Not irritating to the skin.</td>
</tr>
<tr>
<td></td>
<td>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>No mutagenic effect was found in various tests with bacteria and mammalian cell culture.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Based on available data not considered to have a carcinogenic potential.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>Causes irritating effects at esophagus and the gastro-intestinal tract. Observed effects were reversible. The statement has been derived from products of a similar structure or composition.</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>
</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 acutely not harmful to aquatic organisms.
Persistence and degradability | Readily biodegradable.
Bioaccumulation potential | Accumulation in organisms is not to be expected.

Physical/Chemical Properties

Phys/Chem Safety Assessment

- Sodium formate is a white, crystalline powder which does not have flammable or explosive properties. The substance is completely water soluble.

_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>258 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Decomposes at 411 °C 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>No self-ignition below 400 °C.</td>
</tr>
</tbody>
</table>

Exposure Potential

- **Workplace exposure:** Based on the very low toxicity of sodium formate exposure is considered to be without risk. Sodium formate 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 sodium formate exposure is considered to be without risk. Sodium formate released during handling is of no concern.
for the health of consumers since consumers will not come into contact with harmful levels of Sodium formate.

- **Environmental exposure:** Sodium formate is with high probability not harmful to aquatic organisms and hence the substance is not considered to pose an unacceptable risk to the environment. 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)

Most commonly used synonyms

» formic acid

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