GPS Safety Summary

Sodium dithionite

Chemical Identity

Name: Sodium dithionite

CAS number: 7775-14-6

Molecular formula: $\text{H}_2\text{O}_4\text{S}_2\cdot 2\text{Na}$

Product Uses

Hydrosulfite grades and hydrosulfite-based products (blankits) are white, crystalline powders containing more than 88% sodium dithionite. Sodium dithionite is the only industrially important salt of dithionous acid, which has not been isolated. The importance of sodium dithionite lies in its powerful reducing capacity, which allows, for example, vat dyes to be reduced at room temperature. Blankit® and Hydrosulfite are white, microcrystalline powders with a sodium dithionite content of at least 58% (w/w). They serve mainly as a bleaching or reducing agent for applications in textile, paper or mineral industry and food and kaolin clay industries. Hydrosulfite serves as a reducing agent during the dyeing process. Hence, hydrosulfite of inferior quality could cause preventable damages. With the high quality hydrosulfite and Blankit® products of BASF, our customers minimize the danger of damaged material, thus creating a basis for their success, while at the same time being in line with the strict “Öko-Tex” standards.
Benefits

Strong reducing agent based on SO2-chemistry. BASF knows all about paper manufacturing – a fact which enables us to provide Hydrosulfite / Blankit® products tailor-made for the industry’s specific needs. Thus, we focus not only on the bleaching processes we examine processes from start to finish - from energy use to waste water disposal. With Hydrosulfit/Blankit®, you may replace an expensive raw material such as cellulose with a cheaper one like waste paper. Thereby, you reduce costs and preserve the environment. An additional benefit: The sensitive Hydrosulfite / Blankit® bleach does not only help to protect the environment – thanks to a reduced number of impurities, the cellulose fibers are also protected.

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>Of moderate toxicity after single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation. The statements have been derived in parts from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Irritation</td>
<td>May cause slight irritation to the skin. Eye contact causes irritation.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Skin sensitizing effects were not observed in animal studies but a sensitizing effect on particularly sensitive individuals cannot be excluded.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>The substance was not mutagenic in bacteria, in mammalian cell culture and in studies with mammals. The statements have been derived in parts from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>In long-term studies in rats in which the substance was given by feed, a carcinogenic effect was not observed. The statement has been derived from products of a</td>
</tr>
</tbody>
</table>
Toxicity after repeated exposure
Repeated oral uptake of the substance did not cause substance-related effects.

Toxicity for reproduction
The results of animal studies gave no indication of a fertility impairing or a developmental toxic / teratogenic effect. The statements have been derived from products of a similar structure or composition.

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>Acutely harmful to aquatic organisms.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Inorganic substance, therefore biodegradation testing is not applicable.</td>
</tr>
<tr>
<td></td>
<td>In contact with water the substance will hydrolyze rapidly.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Accumulation in organisms is not to be expected.</td>
</tr>
</tbody>
</table>

Physical/Chemical Properties

Phys/Chem Safety Assessment

- Sodium dithionite is a white powder of pungent odor. It is highly soluble in water. The substance is non-explosive and non-flammable. However, it is a self-heating substance and may catch fire when in contact with air and humidity.

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>
</tbody>
</table>
Melting / freezing point | Decomposes at 52 °C
---|---
Boiling point | Decomposes before boiling
Flash point | Not applicable
Flammability | Non flammable
Explosive properties | Non explosive
Self-ignition temperature | 140 °C

**Exposure Potential**

- **Workplace exposure:** Exposure can occur either in a sodium dithionite manufacturing facility or in the various industrial or manufacturing facilities that use sodium dithionite. Those working with sodium dithionite in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, as well as safety equipment in place to limit unnecessary exposure. Safety showers and eye-wash stations should be accessible nearby. Workers should follow the recommended safety measures in the extended Safety Data Sheet (eSDS).

- **Consumer exposure:** Consumers may come in contact with sodium dithionite in textile cleaning agents and ink erasers. The concentration of sodium dithionite in consumer products is generally low; therefore sodium dithionite does not pose any hazard to the consumer. However, carefully read and follow the instructions given on product labels for proper use. Additionally, sodium dithionite is used as a food additive. According to FDA (Food and drug administration) sodium dithionite is listed as GRAS (generally recognized as safe).

- **Environmental exposure:** Due to the inorganic nature of the chemical biodegradation is per definition not possible. Sodium dithionite is classified as acutely harmful to aquatic organisms but it is not expected to accumulate in the food chain. The substance is rapidly hydrolyses to hydrogen sulfate and hydrogen sulfite, the latter being responsible for pH-changes and O₂ depletion in aquatic media, which may cause adverse effects in aquatic organisms. Based on an exposure and subsequent risk assessment it was demonstrated that aquatic and terrestrial organisms are not at risk from substance releases into the environment by the identified uses. 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

Signal word: Danger
Hazard statements:
H251: Self-heating: may catch fire.
H302: Harmful if swallowed.
H316: Causes mild skin irritation.
H319: Causes serious eye irritation.
H402: Harmful to aquatic life.

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. BASF Product finder
   http://www.basf.com/group/corporate/en/brand/HYDROSULFITE

4. BASF Homepage - Blankit®
   http://www.inorganics.basf.com/ca/internet/en/content/Produkte/Blankit/about?

5. OECD SIDS

Most commonly used synonyms

» Dithionous acid, disodium salt (8CI, 9CI)
» Sodium hydrosulfite
» Sodium hyposulfite
» Disodium hydrosulfite
» Hydrosulfit E
» Hydrosulfit P
» Hydrosulfit F

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