Product Safety Summary

Sodium Bicarbonate
(Baking Soda)
CAS No. 144-55-8

This Product Safety Summary is intended to provide a general overview of the chemical substance. The information on the summary is basic information and is not intended to provide emergency response information, medical information or treatment information. The summary should not be used to provide in-depth safety and health information. In-depth safety and health information can be found on the Material Safety Data Sheet (MSDS) for the chemical substance.

Names

- Sodium bicarbonate
- Sodium hydrogencarbonate
- Cooking Soda
- Baking Soda
- Bicarbonate of Soda
- Nahcolite
- Bicarb

Product Overview

Sodium bicarbonate is a white, crystalline solid. It is used primarily in animal feed as a rumen buffer (digestive aid) or as a chemical leavening agent in baking (an alternative to yeast in making baked goods rise). Other uses include detergents and cleaning products, water softening agents and pH adjustment.

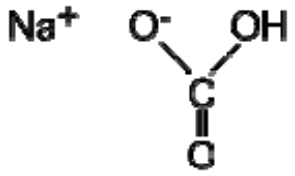
Solvay Chemicals, Inc. does not sell sodium bicarbonate directly to consumers. Consumers may be exposed to sodium bicarbonate in many consumer product applications where the sodium bicarbonate is not transformed or reacted and is present in powder or granular form.

Exposure to sodium bicarbonate, especially powder, can cause irritation to the skin, eyes, and respiratory tract primarily due to mechanical (abrasive) action.

Manufacture of Product

- Most sodium bicarbonate is manufactured by dissolving sodium carbonate (soda ash) in water and then bubbling carbon dioxide (CO2) through the solution to form sodium bicarbonate crystals. Once the sodium bicarbonate crystals reach adequate size, the solution is centrifuged off, and the sodium bicarbonate is dried and packaged.

$$Na_2CO_3 + CO_2 + H_2O \rightarrow 2\ NaHCO_3$$



$NaHCO_3$
Sodium Bicarbonate

Solvay Chemicals, Inc.'s production facilities for sodium bicarbonate are located near Green River, Wyoming and Parachute, Colorado.

Product Description

Sodium bicarbonate ($NaHCO_3$) is manufactured and sold as a white, odorless crystal or powder. Typical physical properties are provided in Table 1.

Table 1: Typical physical properties of Sodium Bicarbonate

Bulk Density	31-75 lbs./ft^3 (500-1200 kg/m^3)
Flash point	Non- flammable
Solubility in water	96 g/L @ 68º F (20º C)
pH	8.6 52 g/L in water

Product Uses

The majority of sodium bicarbonate produced in the United States is used in animal feed as a rumen buffer (digestive aid) or as a chemical leavening agent in baking (an alternative to yeast in making breads and pastries rise). Other uses include detergents and cleaning products, water softening agents and pH adjustment. More highly purified sodium bicarbonate is used in food and pharmaceutical applications.

Exposure Potential

Workplace exposure - Exposures can occur at a sodium bicarbonate or baking soda manufacturing facility or a manufacturing, packaging or storage facility that handles sodium bicarbonate or baking soda Exposure may also occur in the event of a transportation incident. Persons involved in maintenance, sampling and testing activities, or in the loading and unloading of sodium bicarbonate containers are at greater risk of exposure. Following good industrial hygiene practices will minimize the likelihood of sodium bicarbonate exposure; however, persons involved in higher risk activities should always wear proper personal protective equipment such as protective gloves, goggles and a hard hat. In instances where the potential for exposure to dust is high, proper respiratory protection should also be worn.

- **Consumer exposure to products containing sodium bicarbonate** - Although Solvay Chemicals, Inc. does not sell sodium bicarbonate directly to consumers, many of its uses are in consumer products, particularly in detergents, food additives and some animal feeds or supplements. The user should always use these products in strict compliance with the manufacturer's use and/or label instructions.

- **Environmental releases** - Spills of sodium bicarbonate should be contained and isolated from waterways and sewers or drains. Spills should be swept up and placed in a compatible container. Any residue that cannot be swept up should be diluted with large amounts of water. Dispose of waste or residues in accordance with applicable local, state or federal regulations. Persons attempting to clean up sodium bicarbonate spills should wear proper personal protective equipment (See guidelines in the Workplace exposure section of this document or the Material Safety Data Sheet).

- **Fires** – Sodium bicarbonate is not flammable or combustible. In fact, it is the extinguishing media used in most B/C fire extinguishers. Fires that occur in the presence of sodium bicarbonate or baking soda should be extinguished using means appropriate to the surroundings.

For additional information concerning sodium bicarbonate emergency response procedures, please consult the Material Safety Data Sheet.

Health Information

Sodium bicarbonate typically found in consumer products may pose a risk of symptoms primarily due to mechanical irritation from sodium bicarbonate particles in the products. Following good industrial hygiene practices will minimize the likelihood of sodium bicarbonate exposure. Sodium bicarbonate can produce the following adverse health affects:

- **Contact** - Skin exposures can cause minor skin irritation and itching. Eye exposure to sodium bicarbonate may result in redness, tearing or other irritation.
- **Inhalation** - The inhalation of sodium bicarbonate dusts can cause nose and throat irritation or coughing.
- **Ingestion** - The ingestion of sodium bicarbonate may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
- **Other Effects** - The International Agency for Research on Cancer (IARC) has not classified sodium bicarbonate as a carcinogen (cancer causing).

For more information on health effects and routes of exposure, or for information concerning proper first aid measures, please consult the Material Safety Data Sheet.

Environmental Information

Sodium bicarbonate occurs naturally in many environments. It is not considered to be environmentally hazardous or toxic.

For more ecological and environmental information concerning this product, please consult the Material Safety Data Sheet.

Physical Hazard Information

For more information concerning the physical hazards of this product, please consult the Material Safety Data Sheet.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use and/or disposal of this chemical. These regulations can vary by city, state, country or geographic region. Information may be found by consulting the relevant Material Safety Data Sheet specific to your country or region.

Additional Information

- Solvay America, Inc. www.solvaynorthamerica.com
- Solvay Chemicals, Inc. www.solvaychemicals.us
- Solvay Chemicals, Inc. Material Safety Data Sheets www.solvaychemicals.us/EN/Literature/LiteratureDocuments.aspx
- Contact Solvay Chemicals, Inc. solvaychemicals.us@solvay.com
- This summary was prepared in November, 2010.

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