

Product Safety Summary

Sodium Sesquicarbonate (Trona)

CAS No. 533-96-0

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

- Trisodium hydrogencarbonate dihydrate
- Hydrated sodium bicarbonate
- Trona
- Sodium sesquicarbonate
- Sodium sesquicarbonate dehydrate

Product Overview

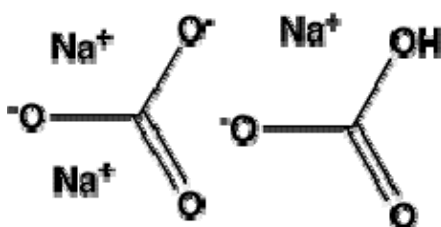
Trona is a naturally occurring mineral which has been mined for decades in Wyoming as a raw material used to manufacture sodium carbonate (soda ash). Trona is an off-white to tan colored crystalline solid, usually sold as granules or powder. There are a number of applications for Trona and products derived from it. For example, in a minimally refined state, trona is used as a rumen buffer (digestive aid) in cattle feed. It has also been used to reduce acid gas stack emissions in industries ranging from the electric power generating industry to cement manufacture for over twenty years.

Solvay Chemicals, Inc. does not sell trona directly to consumers. Consumers will not generally be exposed to trona.

Exposure to trona, especially the powder, can cause irritation to the skin, eyes, and respiratory tract.

Manufacture of Product

- Solvay Chemicals, Inc. manufactures trona products by extracting Trona ore (natural trisodium hydrogendicarbonate dihydrate) from deep underground. It is then mechanically refined and dried into its final form. Solvay Chemicals, Inc.'s production facility is located at its mine near Green River, Wyoming.



$\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3$
Sodium Sesquicarbonate

Trona is the dihydrate (sodium sesquicarbonate with two waters of crystallization ($\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$)).

Product Description

Trona ($\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$) is manufactured and sold as an off-white to tan powder. Typical physical properties are provided in Table 1.

Table 1: Typical physical properties of Trona

Bulk Density	68-82 lbs./ft ³ (1089-1315 kg/m ³)
Flash point	Non- flammable
Solubility in water	120 g/L @ 32° F (0° C) 157 g/L @ 68° F (20° C)
pH	9.8 2 g/L in water

Trona is primarily made up of three chemicals, sodium bicarbonate (baking soda), sodium carbonate (soda ash) and water. Both sodium bicarbonate and sodium carbonate are food additives that are generally recognized as safe (GRAS) by the United States Food and Drug Administration (FDA). Trona has been tested in animals and found to be safe. It is not a sensitizer and is not acutely toxic.

Product Uses

Trona is used in a variety of applications ranging from rumen buffer (digestive aid) for cattle to reduction of acid gas in stack emissions for industries such as electric power generation.

Exposure Potential

Workplace exposure - Exposures can occur at a trona manufacturing facility or a manufacturing, packaging or storage facility that handles trona. 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 trona containers are at greater risk of exposure. Following good industrial hygiene practices will minimize the likelihood of trona 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 dusting is high, proper respiratory protection should also be worn.

- **Consumer exposure to products containing trona** - Although Solvay Chemicals, Inc. does not sell trona directly to consumers, it is possible to find trona in commercially available cattle 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 trona 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 trona spills should wear proper personal protective equipment (See guidelines in the Workplace exposure section of this document or the [Material Safety Data Sheet](#)).
- **Fires** – Trona is not flammable. Fires that occur in the presence of trona should be extinguished using means appropriate to the surroundings.



For additional information concerning trona emergency response procedures, please consult the [Material Safety Data Sheet](#).

Health Information

Trona products may pose a risk of symptoms due to skin or inhalation exposure. Trona can produce the following adverse health effects:

- **Contact** - Skin exposures can cause symptoms ranging from slight skin irritation or in severe or repeated exposures, dermatitis. Eye exposure to trona may result in redness, tearing or severe eye irritation. Irritation of any type is not normally the case in exposures to low concentrations of trona,
- **Inhalation** - The inhalation of trona dusts can cause nose and throat irritation or coughing. Repeated or prolonged exposures may cause sore throat or nosebleeds. See other effects.
- **Ingestion** - The ingestion of trona may cause irritation of the mouth and throat, nausea, vomiting, abdominal irritation and diarrhea.
- **Other Effects** - The International Agency for Research on Cancer (IARC) has not classified trona as a carcinogen (cancer causing). Trona does have small amounts of silica quartz (generally less than 2%). Particles of silica quartz (the common component of beach sand) are found in most naturally occurring ores. Workers inhaling respirable particles of silica quartz at relatively high concentrations, generally over a period of many years, are at risk of developing silicosis, a progressive lung disease. Crystalline silica quartz has been linked to cancer by the International Agency on Research for Cancer (IARC) and the National Toxicology Program (NTP). Other groups, however, have maintained that there is not enough evidence to prove that silica is a potential human carcinogen.

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

Trona occurs naturally as an ore. 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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