

Material Safety Data Sheet

Material Name: Sodium Bicarbonate

ID: C1-184

*** Section 1 - Chemical Product and Company Identification ***

Part Number: Technical, Industrial, Conditioned, USP

Chemical Name: Sodium Bicarbonate

Product Use: For Commercial Use

Synonyms: Sodium hydrogen carbonate; sodium acid carbonate; carbonic acid monosodium salt; bicarbonate of soda; baking soda.

Supplier Information

Chem One Ltd.

8017 Pinemont Drive, Suite 100

Houston, Texas 77040-6519

Phone: (713) 896-9966

Fax: (713) 896-7540

Emergency # (800) 424-9300 or (703) 527-3887

General Comments: FOR COMMERCIAL USE ONLY; NOT TO BE USED AS A PESTICIDE.

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Component	Percent
144-55-8	Sodium Bicarbonate	99-100

Component Information/Information on Non-Hazardous Components

This product is not considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

*** Section 3 - Hazards Identification ***

Emergency Overview

Sodium Bicarbonate is an odorless solid, consisting of white granules or powder. Prolonged or repeated contact may cause irritation to the eyes, skin, and the respiratory system. When heated to decomposition it emits acrid smoke, fumes, and carbon dioxide. Firefighters should wear full protective equipment and clothing.

Hazard Statements

CAUTION! PROLONGED OR REPEATED CONTACT MAY CAUSE IRRITATION TO THE EYES, SKIN, AND RESPIRATORY SYSTEM. Avoid breathing dust. Do not get in eyes, on skin or on clothing. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling.

Potential Health Effects: Eyes

Dusts can irritate the eyes.

Potential Health Effects: Skin

Prolonged or repeated skin contact with this product may cause mild irritation.

Potential Health Effects: Ingestion

Sodium Bicarbonate is of low oral toxicity; however, ingestion of large amounts of Sodium Bicarbonate can cause metabolic alkalosis. Symptoms of overexposure may include thirst, abdominal pain, gastroenteritis, and inflammation of the gastrointestinal tract. Distention or rupture of the gastrointestinal tract can occur, due to generation of carbon dioxide gas. Chronic ingestion of Sodium Bicarbonate in large quantity produces "rebound" in acid secretion and may also cause crystallization of phosphates in kidney leading to kidney stones. Chronic ingestion of Sodium Bicarbonate can lead to interference in the blood-clotting process.

Potential Health Effects: Inhalation

Dusts of this product can be irritating to the respiratory system. Symptoms may include coughing and choking. Chronic inhalation exposure may cause increase in mucosal flow in the nose and respiratory system airways. This symptom normally disappears after exposure ends.

HMIS Ratings: Health Hazard: 1 Fire Hazard: 0 Physical Hazard: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Immediately flush eyes with plenty of water for 15 minutes. If irritation develops or persists, seek medical attention immediately.

First Aid: Skin

If irritation occurs, wash gently and thoroughly with water and non-abrasive soap. If irritation persists, seek medical attention.

First Aid: Ingestion

DO NOT INDUCE VOMITING, unless directed by medical personnel. Have victim rinse mouth thoroughly with water, if conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Contact a physician or poison control center immediately.

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*** Section 4 - First Aid Measures (Continued) ***

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

*** Section 5 - Fire Fighting Measures ***

Flash Point: Not available

Upper Flammable Limit (UEL): Not available

Auto Ignition: Not available

Rate of Burning: Not available

General Fire Hazards

If extremely large quantities of Sodium Bicarbonate are involved in a fire, significant levels of carbon dioxide may be generated. Soda ash (sodium carbonate), another decomposition product resulting from heating above 200 deg F, is a respiratory, skin, and eye irritant.

Hazardous Combustion Products

When heated to decomposition Sodium Bicarbonate emits acrid smoke, fumes, and carbon dioxide and sodium oxides.

Extinguishing Media

Use methods for the surrounding fire and other materials involved in the fire. Use water spray, dry chemical, carbon dioxide or foam.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0 Other:

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. Shovel the material into waste container. Thoroughly wash the area after a spill or leak clean-up. Prevent spill rinsate from contamination of storm drains, sewers, soil or groundwater.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep materials which burn away from spilled material. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

*** Section 7 - Handling and Storage ***

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

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*** Section 7 - Handling and Storage (Continued) ***

Storage Procedures (continued)

Sodium Bicarbonate tablets and effervescent tablets should be stored in tightly closed containers at a temperature less than 40 deg C, preferably between 15-30 deg C. Sodium Bicarbonate injection should be stored at a temperature less than 40 deg C, preferably between 15-30 deg C; freezing should be avoided. Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

A: General Product Information

No exposure guidelines have been established.

B: Component Exposure Limits

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

The exposure limits given are for Particulates Not Otherwise Classified (PNOC).

OSHA: 15 mg/m³ TWA (Total dust)
5 mg/m³ TWA (Respirable fraction)

DFG MAKs 4 mg/m³ TWA (Inhalable fraction)
1.5 mg/m³ TWA (Respirable fraction)

Engineering Controls

Use mechanical ventilation such as dilution and local exhaust. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Supply ample air replacement. Provide dust collectors with explosion vents.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields or chemical goggles. If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Wear appropriate work gloves for type of operation. Rubber gloves are recommended. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

Personal Protective Equipment: Respiratory

None required where adequate ventilation conditions exist. If airborne concentration is high, use an appropriate respirator or dust mask. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Personal Protective Equipment: General

Have an eyewash fountain and safety shower available in the work area. Use good hygiene practices when handling this material including changing and laundering work clothing after use.

*** Section 9 - Physical & Chemical Properties ***

Physical Properties: Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance: White, crystalline powder	Odor: Odorless
Physical State: Solid	pH: 8.3 (0.1 molar aq. soln @ 25 deg C); 8-9 (saturated soln)
Vapor Pressure: Not applicable	Vapor Density: Not applicable
Boiling Point: Decomposes	Freezing/Melting Point: 50 deg C (122 deg F) [decomposes]
Solubility (H2O): 9.6 g/100g H ₂ O at 20 deg C	Specific Gravity: 2.16 @ 20 deg C
Other Solubilities: Insoluble in alcohol	Particle Size: Not available
Bulk Density: 56-62.5 lb/ft ³	Molecular Weight: 84.01
	Chemical Formula: NaHCO ₃

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*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable in dry air at room temperature. In moist air, Sodium Bicarbonate slowly decomposes generating carbon dioxide.

Chemical Stability: Conditions to Avoid

Heat and moisture and exposure to incompatibly chemicals.

Incompatibility

Avoid contact with oxidizing agents and strong acids. Contact with monoammonium phosphate, especially in the presence of water, may cause pressure to build due to the generation of ammonia and carbon dioxide gas; moisture will accelerate this reaction. Sodium potassium alloy can result in a violent reaction with certain extinguishing agents, such as Sodium Bicarbonate. Mixtures of Sodium Bicarbonate with 2-furaldehyde can spontaneously ignite, upon exposure to air. Sodium Bicarbonate is incompatible with dopamine hydrochloride, pentazocine lactate, many alkaloidal salts, aspirin and bismuth salicylate.

Hazardous Decomposition

When heated to decomposition Sodium Bicarbonate emits acrid smoke, fumes, and carbon dioxide and sodium oxides. Decomposition in water also generates carbon dioxide.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

Dusts can irritate the eyes. Prolonged or repeated skin contact with this product may cause mild irritation. Sodium Bicarbonate is of low oral toxicity; however, ingestion of large amounts of Sodium Bicarbonate can cause metabolic alkalosis. Severe alkalosis may be characterized by hyperirritability and tetany. In rare cases, cerebral edema can occur. Renal failure could occur in severe cases. Other human systemic effects include urine retention, changes in potassium levels, expansion of extracellular fluid volume, nausea and vomiting. Symptoms of overexposure may include thirst, abdominal pain, gastroenteritis, and inflammation of the gastrointestinal tract. Dusts of this product can be irritating to the respiratory system. Symptoms may include coughing and choking. Presumably, inhalation or ingestion of Sodium Bicarbonate over a long period of time might result in increased serum sodium levels, possibly with increased blood pressure and water retention. Evidence indicates that chronic use of Sodium Bicarbonate can interfere with the blood clotting process and that chronic ingestion of large amounts can lead to kidney stones.

B: Component Analysis - LD50/LC50

Sodium Bicarbonate (144-55-8)

LD₅₀ (Oral-Rat) 4220 mg/kg; LD₅₀ (Oral-Mouse) 3360 mg/kg

B: Component Analysis - TDLo/TCLo/LD/LDLo

Sodium Bicarbonate (144-55-8)

TDLo (Intraperitoneal-Mouse) 40 mg/kg (female 7 days post): Teratogenic effects; TDLo (Oral-Infant) 1260 mg/kg: Pulmonary system effects, KID; TDLo (Oral-Man) 20 mg/kg/5 days-intermittent: Gastrointestinal tract effects; LC (Inhalation-Rat) > 900 mg/m³; TCLo (Inhalation-Rat) 77200 µg/kg/17 weeks

Carcinogenicity

A: General Product Information

No carcinogenicity data available for this product.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Epidemiology

Information not available.

Neurotoxicity

Information not available.

Mutagenicity

Mutation data are reported during unscheduled DNA synthesis via oral route to rats: Unscheduled DNA Synthesis (Oral-Rat) 50,400 mg/kg/4 week-continuous

Teratogenicity

Sodium Bicarbonate was not teratogenic in rats, mice, or rabbits. Sodium Bicarbonate should not be ingested during pregnancy due to the potential for sodium retention.

Other Toxicological Information

Information not available.

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*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

No information available.

B: Aquatic Toxicity

LC₅₀ (mosquito fish) 24 hours = 7700 mg/L; LC₅₀ (mosquito fish) 48 hours = 7550 mg/L; LC₅₀ (bluegill sunfish) 96 hours = 8250-9000 mg/L; Immobilization Threshold (*Daphnia* water flea) = 2350 mg/L; LC₅₀ (mosquito fish) 24 hours = 7700 mg/L

Environmental Fate

Sodium Bicarbonate has no biological oxygen demand and will not cause oxygen depletion in aquatic environments. Persistence: If released to water, no significant effect is expected.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

As shipped, product is not considered a hazardous waste by the EPA.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Review federal, provincial, and local government requirements prior to disposal. Disposal by controlled incineration or secure landfill may be acceptable.

*** Section 14 - Transportation Information ***

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

Shipping Name: Non-regulated.

Hazard Class: Not Applicable

UN/NA #: Not Applicable

Packing Group: Not Applicable

Required Label(s): None

Additional Info.: None.

International Air Transport Association (IATA)

For Shipments by Air transport: We classify this product as hazardous (Class 9) when shipped by air because 49 CFR 173.140 (a). "For the purposes of this subchapter, miscellaneous hazardous material (Class 9) means a material which presents a hazard during transportation, but which does not meet the definition of any other hazard class. This class includes: (a) Any material which has an anesthetic, noxious, or other similar property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties."

UN: UN 3077

Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (sodium bicarbonate)

Hazard Class: 9

Packing Group: III

Passenger & Cargo Aircraft Packing Instruction: 911

Passenger & Cargo Aircraft Maximum Net Quantity: 400 kg

Limited Quantity Packing Instruction (Passenger & Cargo Aircraft): Y911

Limited Quantity Maximum Net Quantity (Passenger & Cargo Aircraft): 30 kg

Special Provisions: A97 A149

ERG Code: 9L

International Maritime Organization (I.M.O.) Classification

I.M.O. Classification: Sodium Bicarbonate is not regulated by the I.M.O.

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***** Section 15 - Regulatory Information *****

US Federal Regulations

A: General Product Information

Other federal regulations may apply.

B: Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Sodium Bicarbonate. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20.

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Sodium Bicarbonate	144-55-8	No	No	No	Yes	No

State Regulations

A: General Product Information

Other state regulations may apply.

B: Component Analysis - State

None of this product's components are listed on the state lists from CA, FL, MA, MN, NJ, or PA.

Component	CAS #	CA	FL	MA	MN	NJ	PA
Sodium Bicarbonate	144-55-8	No	No	No	No	No	No

Other Regulations

A: General Product Information

Not determined.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Sodium Bicarbonate	144-55-8	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Sod Sodium Bicarbonate	144-55	No disclosure limit.

ANSI Labeling (Z129.1):

CAUTION! PROLONGED OR REPEATED CONTACT MAY CAUSE IRRITATION TO THE EYES, SKIN, AND RESPIRATORY SYSTEM. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing dusts or particulates. Keep from contact with clothing. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, faceshields, suitable body protection, and NIOSH/MSHA-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO₂, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

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*** Section 16 - Other Information ***

Other Information

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

Contact: Sue Palmer-Koleman, PhD

Revision Log

08/22/00 3:14 PM SEP Changed company name, Sect 1 and 16, from Corporation to Ltd.

05/31/01 9:31 AM HDF Checked exposure limits; made changes to Sect 9; overall review, add SARA 311/312 Haz Ratings.

08/20/01 3:10 PM CLJ Add Shipments by Air information to Section 14, Changed contact to Sue, non-800 Chemtrec Num.

09/26/03 3:25 PM HDF General review of entire MSDS. Up-graded Section 3 Health Hazard information, HMIS categories.

Up-dated storage information in Section 7. Up-dated PNOC exposure limits to Section 8. Addition of currently available toxicity data to Section 11. Up-Dated Section 14 Transportation Information.

06/22/05 10:27AM SEP Update IATA Section 14

10/22/07 3:06 PM SEP Update IATA Section 14

This is the end of MSDS # C1-184