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School Materials Safety Manual:

No. 243 Sodium Bicarbonate
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♦ SECTION 1 INTRODUCTION

Material Sodium Bicarbonate, ca 100%

Chemical Formula NaHCO_3

CAS Number 0144-55-8

DOT Classification Not listed as a Hazardous Material for Transportation (49 CFR 172.101)

EPA Classification Not listed as a RCRA Hazardous Waste (40 CFR 261.33), a CERCLA Hazardous Substance (40 CFR 302.4), a SARA Extremely Hazardous Substance (40 CFR 355), or a SARA Toxic Chemical (40 CFR 372.65)

OSHA Classification Not listed as an Air Contaminant (29 CFR 1910.1000, Subpart Z)

Synonyms Baking soda, bicarbonate of soda, monosodium carbonate, sodium acid carbonate, sodium hydrogen carbonate.

NFPA Hazard Rating Not found

Genium Hazard Rating

4 = Extreme

3 = High

2 = Moderate

1 = Slight

0 = Minimum



Description White crystalline powder or granules; odorless.

Overview In addition to possible use in the chemistry lab, this material may be an ingredient of products a vocational education class or the custodial/maintenance staff uses. Sodium bicarbonate is used in fire extinguishers, cleaning preparations, baking powder, and sponge rubber. It presents few hazards if used with care and reasonable precautions.

Manufacturer Always request an up-to-date MSDS from your chemical supplier. That sheet should identify the substance's manufacturer and include an emergency phone number. This *Manual's* Resources/Manufacturers Index lists some larger manufacturers and available emergency phone numbers.

♦ SECTION 2 USE AND STORAGE DATA

Preliminary Planning Considerations *Plan and provide for safe disposal of all school-generated chemical waste.* Check applicable regulations prior to use. For safety, *do not wear contact lenses in the lab:* soft lenses may absorb, and all lenses concentrate, irritants. Particles adhering to contact lens surfaces can cause corneal damage. Wear rubber gloves to minimize skin contact. Employees and students should know the location of eyewash and shower facilities near where chemicals are used. Be sure that eyewash stations and safety showers are in good working order.

Usage Precautions and Procedure Before using, *read this material's container label* and follow all precautions. Do not let sodium bicarbonate contact eyes, skin, or clothing. Do not smoke in storage or use area. Do not allow chemical residue or dust buildup in lab or work areas. Practice good housekeeping to avoid unintentionally mix-

ing incompatibles. Wear safety glasses or goggles and appropriate protective clothing to work with this substance. Keep this material away from notebooks, textbooks, and personal belongings to avoid transporting chemical residues from the lab/work area. After working with chemical materials, and before eating, drinking, or smoking, always wash hands and face. Remove and launder contaminated clothing before reusing.

Additional Data Sodium bicarbonate is stable at room temperature under normal handling and storage condition. It does not polymerize. Its incompatibilities include monoammonium phosphate or a sodium-potassium alloy.

Preferred Storage Location and Methods Storage areas should be cool and well ventilated, and the containers tightly closed and protected from physical damage. To separate incompatible chemicals, store by chemical family, not by alphabetical name. Protect all chemical containers from physical damage. Prohibit smoking in chemical storage areas. Purchase amounts equal to only a year's needs, if at all.

♦ SECTION 3 SPILL/DISPOSAL PROCEDURES

If Spilled Ventilate spill area. Clean up spilled material promptly and thoroughly. Cleanup personnel should protect against skin or eye contact and inhalation. Avoid creating dusty conditions. Shovel, scoop, or vacuum the spilled material into appropriate disposal containers (with a secure lid) in accordance with existing regulations. Sweep, vacuum (with an appropriate filter), or wet mop to minimize dust dispersion. For liquid (solution) spills, cover material with an inert, solid absorbent (vermiculite, dry sand, etc.) and scoop it into an appropriate container (with a secure lid) for disposal in accordance with existing regulations. Dike the spill area with an inert, absorbent material, as needed, to contain the spilled material.

Disposal of Small Quantities *Handle emptied containers carefully since residues may remain.* Check regulations before disposal is necessary. Investigate recycling or reclamation rather than disposal of untreated waste to a landfill. If these methods are not practical, feasible, or in accord with existing regulations, contact your supplier or a licensed disposal contractor for specific treatment/disposal procedures.

Disposal of Larger Amounts Contact your supplier or a licensed disposal company.

Follow all applicable local, state, and Federal regulations for all waste disposal.

♦ SECTION 4 HEALTH HAZARDS

Summary Sodium bicarbonate is an alkaline powder that can irritate the tissue it contacts. Dryness, scaling, and alkaline burns of exposed tissue can occur, depending on the exposure's intensity and duration. The alkaline irritant effects of this material's solutions increase as the solutions' concentration and strength increase. All significant human toxicity data comes from intravenous medical uses

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of sodium bicarbonate; toxicity from other routes is unlikely. Sodium bicarbonate's toxicity is low and the FDA approved its use as a general-purpose food additive. Note: Use of a chemical as a food additive does not indicate that the pure material is safe. Handle all chemicals carefully.

1989-90 ACGIH TLV None established

1988 NIOSH REL None established

1989 OSHA PEL None established

1985-6 Toxicity Data Infant, oral, LD₅₀: 1260 mg/kg;
Rat, oral, LD₅₀: 4220 mg/kg

Carcinogenicity Not listed by the NTP, IARC, or OSHA
Acute Effects Irritation, with possible alkaline chemical burns, of the skin, eyes, and the mucous membranes of the respiratory tract. Moist skin probably increases the alkaline irritant effects.

Chronic Effects None reported

litmus (turns blue) or phenolphthalein (clear indicator turns pink to red). Alkalinity increases as temperature rises and time passes, permitting the material to dissolve. A freshly prepared, 0.1-molar solution of sodium bicarbonate at 77 °F (25 °C) has an 8.3 pH, basic.

Molecular Weight 84

References 1, 6, 7, 84-94, 100, 116, 117, 119, 120, 122;
Genium's *Material Safety Data Sheets Collection*,
No. 263 (8/89)

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♦ **SECTION 5 FIRST AID PROCEDURES**

Get appropriate in-school, paramedic, or community medical attention and support.

Eye Contact Promptly flush eyes with plenty of running water for at least 15 min, including under the eyelids. Get prompt medical attention.

Skin Contact Brush sodium bicarbonate powder off clothes. Remove heavily contaminated clothing. After flushing with large amounts of water, wash exposed areas with soap and water.

Inhalation Remove victim from exposure to fresh air and support breathing as necessary.

Ingestion If ingested, have the exposed person drink 1 to 2 glasses of water. If the quantities or concentrations are excessive, induce vomiting by giving an emetic such as Syrup of Ipecac.

♦ **SECTION 6 FIRE PROCEDURES AND DATA**

Fire Hazards For major fires, or for fires involving large quantities of chemical materials, firefighters should wear appropriate protective clothing and respirators. A self-contained breathing apparatus (SCBA) is recommended.

Flash Point and Method Noncombustible

Autoignition Temperature Not applicable

Flammability Limits in Air (vol. %) Not applicable

Hazardous Decomposition Products Carbon dioxide gas at 122 °F (50 °C). Sodium bicarbonate converts to sodium carbonate at 212 °F (100 °C).

Extinguishing Media Use media appropriate to surrounding fire conditions.

♦ **SECTION 7 PHYSICAL DATA**

Solubility in Water (at 25 °C) Complete

pH Aqueous solutions of sodium bicarbonate prepared with cold water and no agitation are only slightly alkaline to