MATERIAL SAFETY DATA SHEET
Sodium bicarbonate

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION
Bioproducts, Inc.
320 Springside Drive, Suite 300
Fairlawn, OH 44333
Phone: (216) 665-1999

PRODUCT: Bufferight
Chemical Name: Sodium bicarbonate
Chemical Family: Inorganic salts
Synonyms: Bicarbonate of soda; Carbonic acid monosodium salt; Sodium hydrogen carbonate
Chemical Formula: NaHCO₃

Effective Date: 11/30/94
Revision: One
Last Revision Date: 10/93
Emergency Phone: (619) 372-2291

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No.</th>
<th>Wt %</th>
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<tbody>
<tr>
<td>Sodium bicarbonate</td>
<td>144-55-8</td>
<td>&gt;99%</td>
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</table>

Exposure Guidelines

OSHA Standards: None established for this product; Nuisance dust limits established – 8 hr Time Weighted Average (TWA): 15 mg/m³ (total dust); 5 mg/m³ (respirable dust)

NIOSH Recommendations: None established.

ACGIH Threshold Limit Values: None established for this product; Nuisance dust limits established – 8 hr Time Weighted Average (TWA): 10 mg/m³ (total – Particulates Not Otherwise Classified)

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview
This product may present a nuisance dust hazard, causing irritation to respiratory system and eyes. May dry skin causing chapping and redness.

NFPA Ratings:

<table>
<thead>
<tr>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
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<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
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</table>

Key: 0 – Minimal, 1 – Slight, 2 – Moderate, 3 – Serious, 4 – Severe

Potential Health Effects

Target Organs: Respiratory system, eyes, skin, gastrointestinal tract.

Routes of Exposure: Inhalation, dermal and eye contact, ingestion.

Signs/Symptoms of Exposure

Eyes: May be irritating to eyes causing redness, burning and tearing.

Skin: Prolonged and frequent contact with skin may cause redness, dryness and chapping.
Ingestion: No symptoms known, as product is considered very unlikely to produce any toxicity except in very large doses. While almost anything, including water and table salt, may cause illness if taken in excessive amounts, normal exposure to this product would not be expected to produce toxicity.

Inhalation: No symptoms known, as product is considered to be non-toxic if inhaled. Although inhalation of dust from this product may not be considered toxic, it is certainly a hazard if there is inhalation of too many particles. Individuals should be removed from exposure to too high a concentration of even relatively non-toxic substances.

Chronic Effects: Inhalation of dust particles without adequate respiratory protection over a long period of time may lead to reduced pulmonary function. If left untreated and exposure is continued, dry skin conditions may be aggravated, leading to dermatitis.

SECTION 4. FIRST AID MEASURES

Ensure physician has access to this MSDS.

Eyes: Immediately flush eyes with large amounts of water for 15 minutes, lifting lower and upper lids while rotating eyes during wash. Ensure no particles remain in creases of eyelids. If so, continue to wash. Get medical attention if irritation persists.

Skin: Wash area of skin contact thoroughly with soap and water. Remove and wash contaminated clothing. If irritation persists after washing affected area, get medical attention promptly. Wash clothing before re-use.

Inhalation: If inhaled, immediately remove victim to fresh air and call emergency medical care. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Ingestion: If large amounts are swallowed and person is conscious, induce vomiting. Never induce vomiting for an unconscious person. Get medical attention.

SECTION 5. FIRE FIGHTING MEASURES

Flashpoint (OC): Not applicable
LEL: Not applicable
Sensitive to Mechanical Impact? No
Auto Ignition Temp: Not applicable
UEL: Not applicable
Static? No

Extinguishing Media: Product is not flammable or combustible. Use extinguishing media appropriate to primary source of fire. Otherwise, use carbon dioxide, foam or water spray.

Special Procedures: Carbon dioxide will be generated if large amounts of product are involved in a fire. Fire fighters should be equipped with respiratory protection adequate for oxygen deficient atmospheres. Soda ash, a respiratory, eye and skin irritant, will also be generated at temperatures above 200°F. Avoid skin contact and inhalation of these dusts.

Explosion Hazards: None known.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Ventilate enclosed areas and use appropriate personal protective equipment. Sweep or vacuum spilled material in a manner to avoid the generation of dust. Reclaim product for re-use, if possible, or collect in DOT approved containers for disposal in an appropriate manner.

SECTION 7. HANDLING AND STORAGE

Keep containers tightly closed. Store in a cool, dry, well-ventilated location, away from strong acids and temperatures above 132°C (270°F).

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection

Up to 100 mg/m³: Any dust, mist or fume respirator; any air supplied respirator; or any self-contained breathing apparatus.

Up to 250 mg/m³: Any supplied air respirator operated in a continuous flow mode or any powered air-purifying respirator with dust/mist/fume filter.
Up to 500 mg/m³: High efficiency particulate filter with full face piece; any powered air-purifying respirator with tight fitting face piece and a high efficiency particulate filter; any self-contained breathing apparatus with a full face piece; any supplied air respirator with a full face piece.

Up to 7500 mg/m³: Any supplied air respirator with a full face piece operated in a pressure demand or other positive pressure mode.

**EMERGENCY** or **entry into UNKNOWN concentrations**: Self-contained breathing apparatus with a full face piece operated in a pressure demand or other positive pressure mode; or any supplied air respirator with a full face piece operated in a pressure demand or other positive pressure mode in combination with auxiliary self-contained breathing apparatus operated in a pressure demand or other positive pressure mode.

**Escape**: Any air purifying full face piece respirator (gas mask) with a high efficiency particulate filter or any appropriate escape-type self-contained breathing apparatus.

**Skin Protection**

Gloves and aprons as needed to prevent skin contact. If large quantities are handled loosely to generate spillage and dust, use body coverings and boots. A safety shower and eye wash should be available.

**Eye Protection**

Safety goggles to prevent particles from entering eyes. Contact lenses should not be worn when working with this product unless covered with goggles.

**Engineering Controls**

Use general/local exhaust ventilation to keep dust concentrations below Permissible Exposure Levels (PELs) given for nuisance dusts in Section II.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**: White granular solid

**Odor**: None

**Boiling Point**: Not applicable

**Vapor Pressure**: Not applicable

**Solubility (wt.%):** 8.8 @ 20°C (68°F)

**Specific Gravity (H₂O = 1)**: ~2.2 @ 20°C (68°F)

**Odor Threshold**: Not applicable

**Physical State**: Solid

**Melting Point**: Loses CO₂ at 132°C (270°F)

**Vapor Density**: Not applicable

**% Volatiles**: ~72% when heated >132°C

**Evaporation Rate**: Not applicable

**Oil/Water Coefficient**: Not available

### SECTION 10. STABILITY AND REACTIVITY

**Stability**: Stable

**Conditions to Avoid**: Keep away from incompatible materials. Avoid temperatures above 132°C (270°F).

**Incompatibility**: Contact with strong acids will cause an exothermic reaction which generates heat and may cause pressure to build, especially if reaction occurs in a closed container. Contact with monoammonium phosphate, especially in the presence of water, may also cause pressure to build due to the generation of ammonia and CO₂ gas.

**Hazardous Decomposition Products**: Carbon monoxide and carbon dioxide may evolve.

**Hazardous Polymerization**: Will not occur

### SECTION 11. TOXICOLOGICAL INFORMATION

**Irritation data**: skin (human) – 30 mg/3D

eye (rabbit) – 100 mg/3S

**Mutagenicity Data**: Unscheduled DNA Synthesis Analysis (rat/oral) – 50,400 mg/kg/4W

**Toxicity Data**: intraperitoneal (mouse) – TDLo: 40 mg/kg
oral (infant) – LD₅₀: 1260 mg/kg
oral (rat) – LD₅₀: 4220 mg/kg

**Classification of carcinogenicity**: Not considered carcinogenic by NTP, IARC, or OSHA.
SECTION 12. ECOLOGICAL CONSIDERATIONS

Environmental Fate: No data available
Terrestrial Fate: No data available
Atmospheric Fate: No data available
Abiotic Degradation: No data available
Soil Adsorption/Mobility: No data available

Ecotoxicity Values: No data available
Aquatic Fate: No data available
Biodegradation: No data available
Bioconcentration: No data available
Volatilization: No data available

SECTION 13. DISPOSAL CONSIDERATIONS

This product is not regulated as a hazardous waste under RCRA. DO NOT discharge to sewer.

SECTION 14. TRANSPORT INFORMATION

Proper Shipping Name: Non-regulated
Hazard Class: None
Label: None required

ID No.: None
Packaging Group: None

SECTION 15. REGULATORY INFORMATION

United States
TSCA – Inventory: Listed
Atmospheric Standards: Not regulated
CERCLA: Not regulated
SARA Title III: This product is not regulated under Section 302, 311, 312 or 313 of SARA.

Water Standards: Not regulated
Soil Standards: Not regulated

Other Regulations
California – Exposure Limits – PELs: None listed
Ceiling: None listed
Notations: None listed
Direct. List of Haz. Substances: Not listed
Florida – Hazardous Substances List: Not listed
Massachusetts – Right-to-Know List: Not listed
Minnesota – Haz. Subs. List: Not listed
New Jersey – Right-to-Know List (Total): Not listed
Pennsylvania – Right-to-Know List: Not listed
Michigan – Critical Materials List: Not listed
Canada – WHMIS: Ingredient Disclosure List: Not listed
Risk Phrases: None required

SECTION 16. OTHER INFORMATION

Contact: Mr. Sam Beverly (x 2117)
Mr. Dan Andreasen (x 2121)

Phone: (800) 876-6027

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