Safety Data Sheet: Buffit® (Sodium Bicarbonate)

Post-Harvest Solutions Ltd Safety Data Sheet — Version: 3
Product: **Buffit® (Sodium Bicarbonate)** — Date /Revised: 31/05/2023

1. Identification of the Material and Supplier

Buffit® (Sodium Bicarbonate)
Uses: It is a food additive, E500 (acidity regulator, anticaking agent, raising agent), a feed additive and a buffer and neutralizer in the beverage industry. It is also used an abrasive in toothpaste, in dry chemical extinguishers, to absorb odours and in the manufacture of specialty chemicals and pharmaceuticals.

Manufacturer/supplier

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Emergency Information
National Poisons Centre (New Zealand): **0800 POISON (0800 764 766)**

2. Hazard Identification

Not classified as hazardous according to the criteria of the Hazardous Substances (Hazard Classification) Notice 2020. EPA Notice under HSNO Act 1996.

Not classified as dangerous goods according to NZS 5433:2020 Transport of Dangerous Goods on Land. Standards New Zealand.

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3. Composition/information on Ingredients

Chemical Nature:
Ingredients determined to be non-hazardous

Ingredient	CAS Number	Content (% w/w)
Sodium Bicarbonate	144-55-8	>90

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4. First-Aid Measures

Inhalation:
If dust is inhaled and feeling unwell, remove to fresh air and keep at rest in a position comfortable for breathing.
Get medical advice and attention immediately from the **POISON CENTRE (0800 764 766)** or a doctor.

Skin Contact:
Gently wash under shower with plenty of soap and water. If skin irritation occurs get medical advice and attention immediately from the **POISON CENTRE (0800 764 766)** or a doctor.

Eye Contact:
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice and attention immediately from the **POISON CENTRE (0800 764 766)** or a doctor.

Ingestion:
If swallowed and feeling unwell, rinse mouth, do not induce vomiting. Get medical advice and attention immediately from the **POISON CENTRE (0800 764 766)** or a doctor.

Note to physician:
Treat symptomatically

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5. Fire-Fighting Measures

Suitable extinguishing media
In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions: water, water spray, dry powder, foam, carbon dioxide (CO_2).

Specific Hazards:
Avoid generating dust, particularly clouds of dust in a confined or unventilated space. Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. Combustion products include: carbon monoxide (CO), carbon dioxide (CO2), other pyrolysis products typical of burning organic material.

Protective Equipment and precautions for fire fighters
Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves. Use standard procedure for chemical fires. Prevent, by any means available, spillage from entering drains or water courses. Use water delivered as a fine spray to control fire and cool adjacent area. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Equipment should be thoroughly decontaminated after use.

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6. Accidental Release Measures

Emergency Procedures:
For minor spills: Clean up all spills immediately. Stop spill if safe to do so. Avoid contact with skin and eyes. Avoid generating dust. Pick up and transfer to properly labeled containers for disposal. After cleaning, flush away traces with water.

For major spills: Clear area of personnel. Alert Fire Brigade and tell them location and nature of hazard. Control personal contact by using protective equipment. Prevent spillage from entering drains, sewers or water courses. Recover product wherever possible. Put residues in labeled plastic pails or other suitable sealed containers for disposal. If contamination of drains or waterways occurs, advise emergency services.

For Personal Protective Equipment (PPE) refer to Section 8

Environmental precautions
Prevent spilled material from entering drains/surface waters/groundwater. If contamination has occurred, advise local emergency services.

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7. Handling and Storage

Handling
Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with skin and eyes. Keep containers closed until ready for use. Avoid dust formation.

Suitable Container
Food Grade polyethylene coated paper bags, fibre drums or polyethylene/propylene big bags. Packing as recommended by manufacturer. Check all containers are clearly labeled and free from leaks.

Storage
Store tightly closed in dry, cool well ventilated conditions out of direct sunlight. Observe manufacturer's storing and handling recommendations.
Store away from incompatible materials as specified in Section 10.

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8. Exposure Controls and Personal Protection

The effects from exposure to this product depend on several factors including frequency and duration of use, the amount used, control measures adopted, personal protective equipment used and method of use. It is impractical to prepare a data sheet that encompasses all possible situations; therefore, it is anticipated that users will assess the risks and apply control measures as appropriate.

Exposure Controls

Source	Material	TWA (mg/m^3)	STEL (mg/m^3)	Peak (mg/m^3)	TWA (F/CC)
New Zealand WES 2010	Inspirable dust	10			
New Zealand WES 2010	Respirable dust	3			

Material Data:
No exposure limits set by OSH or NOHSC.

Airbourne Exposure Limits:
No exposure limits set by OSH or NOHSC.

Engineering Controls

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

PPE (Personal Protective Equipment)

The selection of PPE is dependent on a detailed risk assessment. This should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

Respiratory protection:
Where an inhalation risk exists, wear a suitable mist respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716

Eye protection:
Dust-proof safety goggles with side shields and/or face-shield, as appropriate. Maintain eye wash fountain and quick6drench facilities in work area.

Body protection:
Hand protection with suitable chemically resistant long gloves (e.g. nitrile rubber 4mm). Overalls, lab coat or apron must be chosen depending on activity and possible exposure.

General safety and hygiene measures:
Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation. Wearing of close work clothing is recommended. No eating, drinking, smoking or tobacco use at the place of work.

9. Physical and Chemical Properties

Molecular Weight:	84.01
Melting Range (°C):	50°C (decomposition starts)
Solubility in water (g/L, 20°C):	96
pH (1% solution):	8.4
Volatile Component (%vol):	Nil
Relative Vapor Density(air=1):	Not Applicable
Lower Explosive Limit (%):	Not Applicable
Autoignition Temp (°C):	Not Available
Appearance:	White powder

10.Stability and Reactivity

Product is stable under normal conditions of use, storage and temperature. Avoid excessive heat, moisture, incompatible materials.

Reacts with acids to form carbon dioxide. Dangerous reaction with monoammonium phosphate dry chemical extinguishing agent. Moisture accelerates this reaction. Reacts violently with sodium-potassium alloy. Keep containers dry and tightly closed to avoid moisture absorption and contamination.

No decomposition if stored under normal conditions of use. Thermal decomposition can lead to release of carbon oxides. Hazardous polymerization will not occur.

11.Toxicological Information

Health Hazard Summary:

Eye
May cause mild irritation.

Inhalation
Inhalation of dust may cause coughing and irritation of the respiratory tract.

Skin
The material is not thought to produce adverse health effects or skin irritation following contact.

Ingestion
Health injuries are not known or expected under normal use. Large doses may cause gastrointestinal upsets, with large amounts of carbon dioxide being produced.

Chronic Health Effects:
Chronic over ingestion may cause metabolic alkalosis, cyanosis and hypernatremia. Not considered to be mutagenic, carcinogenic or a reproductive toxin.

Toxicity Data:
Not hazardous Oral LD_{50} (rat) : >5000 mg/kg.

Irritation:
Mild irritation of eyes and respiratory tract.
Skin irritation/corrosion Rabbit GLP study 40 CFR 798.4470: Slightly irritating
Eye irritation/Corrosion Rabbit EPA TSCA 40 CFR 798.4500 Draize test: minimally irritating.
Irritating (dose of 220mg). [http://inchem.org/documents/sids/sids/sodbicarb.pdf]

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12. Ecological Information

Ecotoxicity

48 hour EC50 Daphnia magna (water flea): >1000 mg/l 96 hour LC50 Rainbow Trout: >7,700 mg/L
48 hour LC50 Apis mellifera (Honeybee): >24µ/bee

Persistence and Degradability
Inorganic compound, found naturally in the environment. The natural mineral form is known as nahcolite. Sodium bicarbonate will absorb moisture and gradually decompose into sodium carbonate, water and carbon dioxide.

Mobility
Sodium bicarbonate is present in the environment predominantly as sodium and bicarbonate ions in the aquatic environment.

Environmental Fate (Exposure)
Not expected to present adverse effects on the environment.

Bioaccumulative Potential
Will not accumulate in living tissues. [http://inchem.org/documents/sids/sids/sodbicarb.pdf]

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13. Disposal Considerations

Recycle wherever possible.

Consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.

Dispose of by: Burial in a licensed land6fill or Incineration in a licensed apparatus (after admixture with suitable combustible material)

Empty contaminated packaging should be taken for local recycling, recovery or waste disposal.

14.Transport Information

Road and Rail Transport:
Not classified as dangerous goods according to NZS 5433:2020 Transport of Dangerous Goods on Land. Standards New Zealand.

Sea Transport
IMDG: Not classified as dangerous goods under transport regulations

Air Transport
IATA/ICAO: Not classified as dangerous goods under transport regulations

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15.Regulatory Information

Not classified as hazardous according to the criteria of the Hazardous Substances (Hazard Classification) Notice 2020. EPA Notice under HSNO Act 1996.

Sodium Bicarbonate, Food Additive (E 500), is found on the following regulatory lists:

- New Zealand - Australia New Zealand Food Standards Code - Food Additives - Schedule 1 Permitted uses of food additives by food type.
- New Zealand - Australia New Zealand Food Standards Code - Food Additives - Schedule 2 Miscellaneous additives permitted in accordance with GMP in processed foods specified in Schedule 1
- CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP
- Sodium bicarbonate is classified by the U.S. Food and Drug Administration (FDA) as a 'Generally Recognised as Safe' (GRAS) ingredient in food with no other limitation than current good manufacturing practice (FDA, 1978; FDA, 1983).
- EU approved food additive (EU, 2000) and a feed ingredient (EU, 1998).

Sodium Bicarbonate, is found on the following chemical inventories:

- TSCA (U.S Environmental Protection Agency) Inventory
- AICS (Australian Inventory of Chemical Substances)
- DSL (Canadian Domestic Substances List)
- ENCS (Japanese Inventory of Chemical Substances)

Sodium Bicarbonate as Carbonic acid monosodium salt, CAS Number 144-55-8, is listed in the New Zealand Inventory of Chemicals (NZIoC)

16.Other Information

Additional Information
This safety data sheet was upgraded on 25/05/2018 (version 2) from October 2015 to bring all Post-Harvest Solution's SDSs into a common format.

Current review date, 31 May 2023 (required 5 yearly review). Document has been amended to reflect the NZ EPA adoption of GHS 7th edition 2017.

Abbreviations
ACGIH – American Conference of Governmental Industrial Hygienists
ADG Code Australian Dangerous Goods
AICS – Australian Inventory of Chemical Substances
EC50 – Half maximal effective concentration
EN - European Standard
EPA – Environmental Protection Authority
GHS - Globally Harmonized System of classification and labelling of chemicals
GRAS – Generally Recognised as Safe
HSNO - Hazardous Substances New Organisms
IATA - International Air Transport Association
ICAO - International Civil Aviation Organization
IMDG - International Maritime Dangerous Goods Code
LD50 LD stands for Lethal Dose. LD50 is the amount of a substance, given all at once, which causes the death of 50% (one half) of a group of test animals.
NZIoC – New Zealand Inventory of Chemicals
NZS – New Zealand Standard
OECD - Organisation for Economic Co-operation and Development
PPE – Personal Protective Equipment
TLV – Threshold Limit Values
TWA – Time-Weighted Average

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (COA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed. Please consult the relevant legislation and regulations governing the use and storage of this type of product. For further information, please contact Post-Harvest Solutions Ltd.
