

## 1. Identification

Product identifier:	BioCarb-K	
Synonyms:	Potassium hydrogen carbonate, potassium bicarbonate, KHCO <sub>3</sub>	
Company product code or Supplier code:	N/A	
Fertiliser Group:	1	
RSA Reg. No. (Act No. 36 of 1947):	K9558	
Supplier:	Andermatt Madumbi (Pty) Ltd Suite 105, 24 Hilton Ave, Hilton KZN 3245, South Africa Telephone: +27 (0) 33 342 3984 (09:00 to 16:00) Email address (technical): support@andermatt.co.za	
Recommended use:	Foliar fertiliser	
Restrictions on use:	Do not use for any other purpose than described on the product label	
Emergency numbers:	+27 (0) 33 342 3984 +27 (0) 82 446 8946	(09:00 to 16:00) (24 H)

## 2. Hazards identification

Classification of this substance:	Acute toxicity – inhalation	Category 4
	Serious eye damage/eye irritation	Category 2
	Specific target organ toxicity, single exposure	Category 3
	Short-term (acute) aquatic hazard	Category 3
Signal word:	<b>WARNING</b>	
Hazard statements:	HARMFUL IF INHALED	H332
	CAUSES SERIOUS EYE IRRITATION	H319
	MAY CAUSE RESPIRATORY IRRITATION	H335
	HARMFUL TO AQUATIC LIFE	H402



**Precautionary statements:**

Wear protective gloves/protective clothing/eye protection.	P280
Do not eat, drink, or smoke when using this product.	P270
Store locked up in a well-ventilated place. Keep container tightly closed.	P403+P233+P405
Use only outdoors or in a well-ventilated area.	P271
Wash hands and face thoroughly after handling. Do not touch eyes.	P264+P265
Avoid breathing dust, mist or spray.	P261
IF INHALED: Remove person to fresh air and keep comfortable for breathing.	P304+P340
Get medical help.	P317
IF IN THE EYES: Rinse cautiously with water for several minutes.	P305+P351
Remove contact lenses, if present and easy to do. Continue rinsing.	P338
If eye irritation persists: Get medical help.	P337+P317
Get medical help if you feel unwell.	P319
Avoid release to the environment.	P273
Dispose of contents and/or container in accordance with regulations.	P501
Refer to manufacturer or supplier for information on disposal, recovery or recycling.	P503

### 3. Composition/information on ingredients

Components of this substance	CAS number	%
Potassium hydrogen carbonate	298-14-6	> 99.0
Calcium (calculated as the carbonate)	3983-19-5	< 0.6
Moisture	7732-18-5	< 0.4
Impurities	N/A	< 0.02
Silica/silicates (by calculation)	7631-86-9	< 0.1
Total of other relevant elements	Various	< 0.01

### 4. First aid measures

Inhalation:	<p>Most important acute symptoms/effects: respiratory tract irritation, irritation of the upper airway, coughing, redness may occur. Suffocation or breathing difficulties may result from inhalation of dust (or mist/spay if dissolved in water) or heat-induced degradation products. Information on symptoms of chronic exposure by inhalation is not available.</p> <p>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help.</p>
Skin contact:	<p>Most important acute symptoms/effects: mild skin irritation, redness may occur in sensitive individuals.</p> <p>If the skin is exposed to BioCarb-K, rinse with water.</p>

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Eye contact:	Most important acute symptoms/effects: serious eye irritation, redness and tearing will occur.  IF IN THE EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical help if eye irritation persists.
Ingestion:	Most important acute symptoms/effects: Ingestion of significant amounts is not considered a likely exposure route as BioCarb-K is a powder with a very bitter taste.  If some of the substance gets in your mouth, rinse cautiously with water for several minutes.
Most important delayed symptoms/effects after exposure:	A sensation of a burnt or sore throat may occur.
Indication of immediate medical attention:	If irritation of the upper airways occurs or if eye irritation persists, get medical help. Treat symptomatically. Pre-existing conditions may be aggravated, such as eye disorders, skin disorders or respiratory tract disorders. Get medical help if you feel unwell.
Protection of first responders:	Avoid undue contact with the substance and avoid breathing dust. Wear gloves and a mask to prevent transmission of pathogens.

## 5. Firefighting measures

Appropriate/suitable extinguishing media:	BioCarb-K itself does not burn but will decompose at high temperatures producing CO <sub>2</sub> that may help to extinguish the fire. Water spray, foam, carbon dioxide (CO <sub>2</sub> ) or dry powder may be used but select extinguishing media that is appropriate for local circumstances and the surroundings.
Inappropriate extinguishing media:	None known.
Nature of hazardous combustion products:	If BioCarb-K heats up to above 100 °C dangerous levels of suffocating carbon dioxide (CO <sub>2</sub> ) may be released into the air. Toxic fumes including carbon monoxide (CO) and potassium oxides may also be present.
Other hazards arising from the substance:	None known. (There is no direct explosion hazard and no sensitivity to mechanical impact or to static discharge for this substance).

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Special protective equipment:	Avoid breathing dust, vapours, and combustion by-products. Use self-contained breathing apparatus and complete protective clothing. Do not attempt to act without suitable protective equipment.
Precautions and/or protective actions:	Move containers from the fire area if it can be done without risk. Water spray may be used to cool down the containers, but only after considering other material in the vicinity that may pose a hazard. Stay upwind and keep out of low areas. Take precautions to prevent extinguishing media contaminating surface water or ground water.

## 6. Accidental release measures

Distinguish between large or small spills or releases.

Personal precautions:	Avoid breathing dust Avoid contact with skin and eyes. Wash hands and face thoroughly after handling. Do not touch eyes. Do not eat, drink, or smoke during clean-up operations.
Protective equipment:	Wear protective gloves/protective clothing/eye protection. In case of inadequate ventilation, wear respiratory protection.
Emergency actions and procedures:	No special emergency actions or procedures are required. Ventilate the spill area but prevent dust cloud formation.
Environmental precautions:	Avoid release to the environment. Prevent spills from entering storm sewers or drains. Report any release to the appropriate authorities.
Methods and materials for containment and cleaning up:	The product is a dry powder. Prevent the formation of dust. Move intact containers from the spill area.  <u>Small spills:</u> Sweep or vacuum, without creating dust, into a suitable container for disposal and wash the area with water.  <u>Large spills:</u> Shovel the dry material into suitable containers for disposal. Avoid creating dust. Flush the area with water if appropriate. Prevent the run-off entering sewers, water courses, basements, or confined areas. Dike if necessary.  Dispose of via a licensed waste disposal contractor.

## 7. Handling and storage

**Precautions for safe handling:** Use only outdoors or in a well-ventilated area. Avoid the creation of dust. Avoid breathing any dust. Do not get in eyes, on skin or on clothing. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection, such as nitrile rubber gloves, safety glasses (or goggles when dust is present) and long-sleeved clothing. Wash hands and face thoroughly after handling. Do not touch eyes.

**Conditions for safe storage:** Store locked up in a dry and well-ventilated place. Keep container tightly closed. Store separately from acidic materials. Store separately from any food, feed, or drinks. Keep out of reach of children and uninformed persons.



**Any incompatibilities:** The substance is incompatible with aluminium, copper, brass, and acidic materials. Contact with acids may cause violent production of suffocating carbon dioxide.

## 8. Exposure controls/personal protection

The occupational exposure limit value (AOEL systemic) for the substance is 149 mg/kg bodyweight per day.

The Food and Drug Administration (FDA) affirms potassium bicarbonate as generally recognised as safe (GRAS), but limits bicarbonate ion to a maximum daily dosage of 200 mEq for persons up to 60 years old, and 100 mEq for older persons. The recommended daily value for potassium is 4 700 mg/day for adults and children aged 4 years and older.

Wear personal protective equipment (protective gloves/protective clothing/eye protection/appropriate footwear) when handling the substance.

Avoid the release of dust. In case of inadequate ventilation, wear respiratory protection.



Appropriate engineering controls include local exhaust ventilation to limit accumulation of dust that may be generated. Eye wash stations should be provided.

## 9. Physical and chemical properties

Physical state	Powder
Clarity (of liquids):	Not applicable
Colour:	White
Odour:	None
Odour threshold:	Not applicable
Melting point/freezing point:	292 °C with decomposition
Boiling point (or initial point and range):	Decomposes before boiling
Flammability (gases, liquids, solids):	Non-flammable
Lower and upper explosion limits:	Not explosive
Lower and upper flammability limits:	Not applicable
Flash point:	Data not available
Autoignition temperature:	Will not auto ignite
Decomposition temperature:	Above 100 °C
pH, neat:	Not applicable
pH, aqueous dilution:	8 to 8.5 (% dilution not given)
Dissociation in water, pKa:	6.37
Kinematic viscosity (of liquids) in mm <sup>2</sup> /s:	Not applicable
Solubility in water:	Freely at ambient temperature
Solubility in a specified non-polar solvent:	Insoluble in non-polar solvents
Partition coefficient (n-octanol/water):	Data not available
Vapour pressure (at 25 °):	Data not available
Density and/or relative density:	2.17 g/ml
Relative vapour density:	Data not available
Particle characteristics:	Data not available
Evaporation rate:	Not applicable

## 10. Stability and reactivity

The substance dissociates into potassium ions and bicarbonate ions when in contact with water.

Although not classified as corrosive to metals, BioCarb-K may oxidize alkali-sensitive metals (such as aluminium, copper, bronze).

Will react violently with acids, producing foam and carbon dioxide (CO<sub>2</sub>).

Do not allow the substance to heat up excessively. It will decompose above 100 °C and produce suffocating carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>).

Pressure, shock, and vibrations have no known effect. No stabilisers were added or are required. There is no possibility of polymerisation.

The physical appearance will not change when properly stored and appropriately handled.

## 11. Toxicological information

The following information is available for potassium hydrogen carbonate:

Acute oral LD <sub>50</sub>	> 2 064 mg/kg
Acute dermal LD <sub>50</sub>	> 2 000 mg/kg
Acute inhalation LC <sub>50</sub>	4.8 mg/ℓ
Skin corrosion/irritation	Not classified
Eye damage/irritation	Category 2
Skin/respiratory sensitisation	Not classified
Germ cell mutagenicity	Unlikely to be genotoxic
Carcinogenicity	Not listed by IARC as a known carcinogen
Reproductive toxicity	Current data do not suggest any developmental toxicity
STOT SE	Category 3
STOT RE	Not classified

**Routes of exposure:** Careless actions and neglecting to wear personal protective equipment (PPE) may result in dermal and eye exposure to the dry powder. Exposure can also occur through inhalation of the dust (or mist/spray when dissolved in water). Ingestion of significant amounts is not considered a likely exposure route as BioCarb-K is a powder with a very bitter taste.

**Symptoms** related to the physical, chemical, and toxicological characteristics of the substance include serious irritation of the eyes, redness, and excessive tearing (epiphora). Inhalation can cause irritation, breathing difficulties and a sensation of a burnt or sore throat. Ingestion may cause serious bloating as the bicarbonate reacts with stomach acids.

**Effects of exposure:** The substance has been classified as acutely harmful through inhalation, but apart from irritation, data on the effects are not available.

Hazard class	Hazard category	Rationale for classification
Acute toxicity, oral:	Not classified	Based on information for the substance
Acute toxicity, dermal:	Not classified	Based on information for the substance
Acute toxicity, inhalation:	Category 4 – harmful when inhaled	Based on information for the substance
Skin corrosion/irritation:	Not classified	Based on information for the substance
Serious eye damage/irritation:	Category 2 – causes serious eye irritation	Reported for the substance
Respiratory/skin sensitisation:	Not classified	Based on information for the substance
Germ cell mutagenicity:	Not expected to be mutagenic	Based on information for the substance
Carcinogenicity:	Not expected to be carcinogenic	Based on information for the substance
Reproductive toxicity:	Not expected to be a reproductive toxicant	Based on information for the substance
STOT single exposure:	Category 3 – May cause respiratory irritation	Reported for the substance
STOT repeated exposure:	Not classified	Based on information for the substance
Aspiration hazard:	Classification not possible	No information is available

## 12. Ecological information

The following information is available for potassium hydrogen carbonate:

Acute aquatic hazard	Fish 96 h LC <sub>50</sub> > 1200 mg/ℓ Daphnia 48 h LC <sub>50</sub> > 860 mg/ℓ Algae 72 h EC <sub>50</sub> > 87.5 mg/ℓ
Chronic aquatic hazard	Not considered hazardous (occurs naturally)

The substance has no known impact on honeybees or birds.

Toxicity for soil micro-organisms and earthworms are not expected since potassium and bicarbonate occur naturally.

No negative impact on sewage treatment is expected

The substance is not expected to be persistent. Due to its water solubility and dissociation into potassium and bicarbonate ions, it is expected to be mobile in soil and to disperse quickly. It is not expected to have any significant bio-accumulative potential.

The substance is not expected to have any endocrine disrupting potential.

The substance does not contain halocarbon molecules and thus have no ozone depletion potential.

The substance is not expected to have any climate change potential.

<b>Hazard class</b>	<b>Hazard category</b>	<b>Rationale for classification</b>
Acute aquatic hazard:	Category 3 – harmful to aquatic life	Based on information for the substance
Chronic aquatic hazard:	Not classified	Based on information for the substance

## 13. Disposal considerations

Dispose of waste residues responsibly as low-hazard chemical waste through a licensed waste removal company.

Dispose of the container by rinsing it properly. Do not re-use. Destroy mechanically and dispose of as ordinary waste through a licensed waste removal company.

Refer to the manufacturer or supplier for information on recovery, recycling, or reclamation options

Refer to the manufacturer or supplier for information on disposal of unused material.

The physical/chemical properties of the product should have no significant effect on disposal procedures, except to be aware of the incompatibility/reactivity with acids, when disposing of bulk substance.

Take precautions when incinerating the substance in bulk as large volumes of carbon dioxide will be formed.



The substance could be cautiously neutralised by treatment with a weak acid.

## 14. Transport information

UN number:	None. Not classified as dangerous in the context of transport regulations.
UN proper shipping name:	Not applicable.
UN packing group number:	Not applicable.
UN transport hazard class(es):	Not applicable.
A known marine pollutant (IMDG Code)?	Not a marine pollutant.
A known severe marine pollutant?	Not a marine pollutant.
Environmentally hazardous, ADR?	Not classified as dangerous in the context of transport regulations.
Environmentally hazardous, RID?	Not classified as dangerous in the context of transport regulations.
Environmentally hazardous, ADN?	Not classified as dangerous in the context of transport regulations.
Transport in bulk by sea, IMO?	Not classified as dangerous in the context of transport regulations.

There are no special precautions which a user needs to be aware of or needs to comply with.

## 15. Regulatory information

Relevant safety regulations:	Regulations for hazardous chemical agents 2021, Department of Employment and Labour (March 2021).
Relevant health regulations:	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).
Relevant environmental regulations:	The National Environmental Management Act, 107 of 1998 (NEMA). Guidelines on the administration of incidents, as described in section 30 of the NEMA, Department of Environmental Affairs (2019).
Subject to the Montreal Protocol?	No.
Subject to the Stockholm Convention?	No.
Subject to the Rotterdam Convention?	No.
Subject to any prohibitions?	No.
Subject to any restrictions?	No.

## 16. Other information

SDS identification or reference number: 004

Date of the previous revision of this SDS: Not dated.

Previous revision number: Not numbered.

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There is no additional information relevant to the material's nature or use, or any other relevant information.

Abbreviations that may have been used in this document:

- AND means European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
- ADR means Agreement concerning the International Carriage of Dangerous Goods by Road.
- AOEL means the maximum amount of substance to which the worker may be exposed without any adverse health effects
- CAS means Chemical Abstract Service.
- Cat. Means Category.
- GHS means Globally Harmonised System of Classification and Labelling of Chemicals.
- IMDG Code means International Maritime Dangerous Goods Code.
- IMO means International Maritime Organisation.
- NEMA means National Environmental Management Act.
- RID means Regulations concerning the International Carriage of Dangerous Goods by Rail.
- SDS means safety data sheet.
- STOT means specific target organ toxicity.
- UN means United Nations.

This safety data sheet was compiled in compliance with the following regulations and guidelines:

- a. Regulations for hazardous chemical agents 2021, Department of Employment and Labour (March 2021).
- b. The globally harmonised system of classification and labelling of chemicals (GHS), 9th Revised Edition, United Nations (2021).
- c. Globally harmonised system of classification and labelling of chemicals (GHS), SANS 10234:2019, Ed. 2.00 (2019).