

## 1. Identification

Product identifier:	Humate Crystals	
Synonyms:	Potassium humate crystals, humic acid potassium salt	
Company product code or Supplier code:	N/A	
Fertiliser Group:	3	
RSA Reg. No. (Act No. 36 of 1947):	M345	
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@anderstatt.co.za	
Recommended use:	Fertiliser Group 3	
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:	Serious eye damage/eye irritation	Category 2
Signal word:	WARNING	
Hazard statements:	CAUSES SERIOUS EYE IRRITATION	H319



## SAFETY DATA SHEET



Revision No.: 2

SDS No.: 037

Date: 03 August 2023

*Humate  
Crystals*

Page 2 of 11

Other hazards: May form explosive dust clouds. Avoid sources of ignition.  
Ingestion of large amounts may cause gastrointestinal irritation, diarrhoea, nausea, vomiting and cramps.  
Can be hazardous to aquatic creatures through an influence on metals, pesticides, and other contaminants in the environment.

## Precautionary statements:

Wear protective gloves/protective clothing/eye protection.	P280
Do not eat, drink, or smoke when using this product.	P270
Use only outdoors or in a well-ventilated area.	P271
Wash hands and face thoroughly after handling.	P264
IF IN 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
Avoid release to the environment apart from the intended use.	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 components

Component	CAS number	%
Total humic extract (72 – 76%)	1415-93-6	
Humic acids, present as humates:	68514-28-3	57 – 59
Fulvic acids, present as fulvates:	Not available	15 – 17
Potassium ions:	24203-36-9	5 – 6
Calcium ions:	14127-61-8	0.8
Magnesium ions:	22537-22-0	0.2
Other nutritional elements:	Various	< 1
Heavy metals	Various	< 0.01
Moisture:	7732-18-5	17 – 19
Other unidentified:	Not known	< 4

### 4. First aid measures

Eye contact: Most important acute symptoms/effects: eye irritation, redness and tearing may 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.

Inhalation:	<p>Most important acute symptoms/effects: suffocation or breathing difficulties may result from inhalation of dust or heat-induced degradation products; irritation of the upper airway, coughing, redness may occur.</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: skin irritation, redness may occur.</p> <p>IF ON SKIN: Wash with plenty of water. Get medical help. Take off contaminated clothing and wash it before reuse.</p>
Ingestion:	<p>Most important acute symptoms/effects: Ingestion of large amounts may cause gastrointestinal irritation, diarrhoea, nausea, vomiting and cramps.</p> <p>IF SWALLOWED: Rinse mouth. Get medical help.</p>
Most important delayed symptoms/effects after exposure:	<p>Diarrhoea, headache, or a sensation of a burnt or sore throat may occur.</p>
Indication of immediate medical attention:	<p>If skin irritation occurs or if eye irritation persists, get medical help. Get medical help if ingested. Treat symptomatically. Pre-existing conditions may be aggravated, such as eye disorders, skin disorders or respiratory tract disorders.</p>
Protection of first responders:	<p>Avoid undue contact with the substance and avoid breathing dust. Wear gloves and a mask to prevent transmission of pathogens.</p>

## 5. Firefighting measures

Appropriate/suitable extinguishing media:	<p>Humic substances are not flammable. However, they are organic molecules and may be combustible, especially if dust clouds are allowed to form.</p> <p>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.</p>
Inappropriate extinguishing media:	<p>None known. Do not scatter spilled material with high pressure water streams.</p>
Nature of hazardous combustion products:	<p>Toxic and suffocating fumes including carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>) will be released in a fire.</p>

---

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.
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 apart from the intended use. 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 granular material. 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 salvage or disposal. Flush the area with water if appropriate. Prevent run-off entering sewers, water courses, basements, or confined areas.  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 dust creation. Avoid breathing 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, a face shield, 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 in a dry place out of direct sunlight. Store in a closed container. Store separately from acidic materials and oxidising agents (such as pool chemicals). Store separately from any food, feed, or dinks. Keep out of reach of children and uninformed persons.



**Any incompatibilities:** The substance is incompatible with oxidising agents, strong bases (alkaline materials) and acidic materials including all sulphate-based trace elements, calcium nitrate and acid phosphates.

## 8. Exposure controls/personal protection

No occupational exposure limit values are available for this substance.

No biological limit values are available for this substance. Humates are not used as dietary supplements.

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 good general ventilation to limit accumulation of dust that may be generated. Safety showers and eye wash stations should be provided.

## 9. Physical and chemical properties

Physical state	Crystalline granules
Clarity (of liquids):	Not applicable
Colour:	Black
Odour:	No information available

Odour threshold:	Not known
Dust content	Not determined
Melting point/freezing point:	> 300 °C (sodium humate)
Boiling point (or initial point and range):	> 600 °C (sodium humate)
Flammability (gases, liquids, solids):	Non-flammable
Lower and upper explosion limits:	Data not available
Lower and upper flammability limits:	None
Flash point:	Data not available
Autoignition temperature:	> 400 °C at 1.013 hPa (sodium humate)
Decomposition temperature:	Approximately 250 °C
pH, neat:	Not applicable
pH, aqueous dilution:	10.1 (10% dilution)
Dissociation in water, pKa:	Data not available
Kinematic viscosity (of liquids) in mm <sup>2</sup> /s:	Not applicable
Solubility in water:	369 g/l at 20 °C
Solubility in a specified non-polar solvent:	Insoluble in non-polar solvents
Partition coefficient (n-octanol/water):	log Pow: <i>ca</i> -2,08 at 23 °C (sodium humate)
Vapour pressure (at 25 °):	Data not available
Density and/or relative density:	0.9
Relative vapour density:	Data not available
Particle characteristics:	Granules (crystals) of 2 to 5 mm diameter
Evaporation rate:	Not applicable

## 10. Stability and reactivity

No test data is available on the reactivity of the substance. The substance is not an oxidiser. Being an organic substance, it may be combustible, especially when dust is formed.

The substance is chemically stable when properly stored and handled.

No stabilisers were added or are required.

The physical appearance will not change during storage and handling. There is no safety significance.

There is no possibility of hazardous reactions such as polymerisation.

Do not allow the substance to heat up excessively. Pressure, shock, and vibrations have no known effect. Static discharge must be avoided when dust from the substance is present in a confined space. Do not smoke near the storage area or when using the substance.

The substance is incompatible with oxidising agents, strong bases (alkaline materials) and acidic materials including all sulphate-based trace elements, calcium nitrate and acid phosphates.

The substance will decompose at high temperatures or in flames, forming hazardous gases such as oxides of carbon (carbon monoxide and carbon dioxide), nitrogen (e.g., nitric oxide) and sulphur (e.g., sulphur dioxide).

## 11. Toxicological information

Humates consist of humic acids (HA) and a fulvic fraction (containing fulvic acids, FA) that are obtained commercially by alkaline extraction of leonardite which is the organic matter in a state of advanced decay between the stages of compost or peat and the formation of lignite. Leonardite is rich in humic substances (HS) which consist of complex heterogeneous mixtures of carbon-based substances formed by biochemical reactions. It is described as an amorphous aggregate of multiple, relatively small organic compounds that cannot be defined by any single molecular structure. In other words, HA and FA are not single definable compounds, but rather weakly bound aggregates of multiple compounds. The individual molecules share common chemical and biological properties due to their common structural features. The heterogeneous composition of the humic acids is specific to their site of origin. Reported toxicological properties of the acids or their salts may therefore vary significantly.

Routes of exposure: Exposure to the substance can occur through ingestion and through skin and eye contact. It can also occur through inhalation of any dust that may form (or mist/spray when dissolved in water).

Symptoms related to the physical, chemical, and toxicological characteristics of the substance may include irritation and redness upon skin contact. Eye contact will cause irritation, redness, and excessive tearing (epiphora). Inhalation may cause irritation, breathing difficulties and a sensation of a burnt or sore throat. Ingestion of large amounts may cause gastrointestinal irritation, diarrhoea, nausea, vomiting and cramps.

Effects of exposure: The substance has been classified as an eye irritant. It is not acutely toxic.

Hazard class	Hazard category	Rationale for classification
Acute toxicity, oral:	Not classified	Published data.
Acute toxicity, dermal:	Not classified	Published data.
Acute toxicity, inhalation:	Not classified	Published data.
Skin corrosion/irritation:	Not classified	No irritation reported.
Serious eye damage/irritation:	Category 2 – causes serious eye irritation	pH of aqueous solutions: > 10
Respiratory or skin sensitisation:	Not classified	No sensitisation reported.
Germ cell mutagenicity:	Not mutagenic	Published data.
Carcinogenicity:	Not classified	Published data.
Reproductive toxicity:	Not classified	Published data.
STOT single exposure:	Not classified	Published data.
STOT repeated exposure:	Not classified	Published data.
Aspiration hazard:	Not classified	Properties of the substance.

## 12. Ecological information

The following information was reported for humic acid sodium salt (sodium humate):

Toxicity to fish: 96 h static test  $LC_{50}$  - *Poecilia reticulata* (guppy) > 128 mg/l

Toxicity invertebrates: 48 h static test  $EC_{50}$  - *Daphnia magna* (water flea) > 113 mg/l

Toxicity to algae: 72 h static test  $ErC_{50}$  - *Desmodesmus subspicatus* (green algae) > 89,2 mg/l

Several research papers on humic substances reported that no acute or chronic effects were observed. The substance was therefore not classified for acute aquatic toxicity. Furthermore, the substance is not readily biodegradable, and bioaccumulation is not expected. It was consequently not classified for chronic aquatic toxicity.

It must be emphasised however that humic substances can be hazardous to aquatic creatures at high concentrations. Though they are not harmful per se, they can influence how heavy metals, pesticides, and other contaminants behave in the environment. Humic acid is also a precursor for carcinogenic and mutagenic disinfection byproducts (in wastewater treatment), like trihalomethanes and haloacetic acids.

No data are available regarding negative effects of the substance on birds, honeybees, or terrestrial plants.

Toxicity for soil micro-organisms and earthworms are not expected since humic substances are of natural origin.

Reports indicate that the substance may have a negative impact on sewage treatment. The presence of humic substances in wastewater makes the water treatment process more difficult, significantly affecting the removal of heavy metals and other such toxins and causing fouling of the membranes.

The substance is not readily biodegradable, based on a value of 4.9% reported for humic acid sodium salt (aerobic, exposure time 28 d). It is not expected to have any significant bio-accumulative potential (based on  $\log P_{ow}$ ).

It has been reported that the substance has no endocrine disrupting potential.

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

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

## 13. Disposal considerations

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

Do not allow unused or spilled material to contaminate surface water.

Dispose of the container by rinsing it properly. Do not re-use. Destroy mechanically and dispose of through a licensed recycling facility.

Refer to the manufacturer or supplier for information on recovery or recycling.

Refer to the manufacturer or supplier for options on reclamation.



Refer to 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 with acids, bases (alkaline materials) and oxidising agents when disposing of bulk substance.

There are no special precautions necessary for incineration.

There are no special precautions for landfill, except to be aware that the product is soluble in water and soil mobility may be high. The substance is of natural origin and are of no environmental concern at low concentrations. However, they are hazardous to aquatic organisms at high concentrations.

There is no other relevant information.

## 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).  Waste Classification and Management Regulations 2013, National Environmental Management Waste Act, Act 59 of 2008, Department of Water and Environmental Affairs.
Relevant transport regulations:	The National Road Traffic Act 93 of 1996, Department of Transport.  SANS 10228: The identification and classification of dangerous goods for transport by road and rail modes (2012).
Other relevant regulations:	Regulations to Domesticated the Requirements of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, Department of Forestry, Fisheries and the Environment (February 2023).
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: 037

Date of the previous revision of this SDS: 13 June 2022      Previous revision number: Not numbered.

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.

CAS means Chemical Abstract Service.

Cat. Means Category.

FA means fulvic acid.

# SAFETY DATA SHEET



Revision No.: 2

SDS No.: 037

Date: 03 August 2023

*Humate  
Crystals*

Page 11 of 11

---

GHS means Globally Harmonised System of Classification and Labelling of Chemicals.

HA means humic acid.

HS means humic substances.

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).