1. Identification

Product identifier:	Humate Liquid
Synonyms:	None
Company product code or Supplier code:	N/A
Fertiliser Group:	3
RSA Reg. No. (Act No. 36 of 1947):	M344
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:	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 (09:00 to 16:00) +27 (0) 82 446 8946 (24 H)

2. Hazards identification

Classification of this liquid mixture:	Not classified
Signal word:	None
Hazard statements:	None
Other hazards:	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
Wash hands and face thoroughly after handling.	P264
Avoid release to the environment apart from the intended use.	P273
Dispose of contents and/or container in accordance with regulations.	P501

3. Composition/information on ingredients

Component	CAS number	%
Total humic extract (5 – 6%):	1415-93-6	
Humic acids, present as humates:	68514-28-3	4 – 5
Fulvic acids, present as fulvates:	Not available	1
Total of potassium, calcium, and magnesium ions:	Various	< 1
Other nutritional elements:	Various	< 1
Heavy metals:	Various	< 0.01
Moisture:	7732-18-5	90 – 92
Other unidentified:	Not known	< 5

4. First aid measures

Inhalation:

Inhalation of the mixture is possible during spraying. Most important acute symptoms/effects: irritation of the upper airways may occur.

IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.

Eye contact:

Most important acute symptoms/effects: eye irritation, redness may occur.

IF IN THE EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Skin contact:

Most important acute symptoms/effects: skin irritation, redness may occur.

IF ON SKIN: Wash with plenty of water.

Ingestion:

Most important acute symptoms/effects: irritation of the mucous membranes, nausea and gastrointestinal discomfort.

IF SWALLOWED: If some of the mixture gets ingested, drink plenty of clean water.
Get medical help if you feel unwell.

Most important delayed symptoms/effects after exposure:

None known.

Indication of immediate medical attention:

If skin irritation or occurs, or if eye irritation persists, get medical help. Special treatment is not considered necessary. Damage to health is not expected. Pre-existing conditions may be aggravated, such as eye disorders or skin disorders.

Protection of first responders:

Avoid undue contact with the mixture.
Wear gloves and a mask to prevent transmission of pathogens.

5. Firefighting measures

Appropriate/suitable extinguishing media:	The product is an aqueous mixture and does not burn. Water spray, foam, carbon dioxide (CO_2) or dry powder may be used but select extinguishing media that is appropriate for local circumstances and the surroundings.
Inappropriate extinguishing media:	None known. Do not scatter material with high pressure water streams.
Nature of hazardous combustion products:	Suffocating and toxic fumes including carbon monoxide (CO), carbon dioxide (CO_2) and oxides of nitrogen and sulphur may be released in a fire.
Other hazards arising from the mixture:	None known. There is no direct explosion hazard and no sensitivity to mechanical impact or to static discharge for this mixture.
Special protective equipment:	Avoid breathing dust, vapours, and combustion by-products from other chemicals in the vicinity of the fire. 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, leaks, or releases.

Personal precautions:	Avoid contact with skin and eyes. Wash hands 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/face protection.
Emergency actions and procedures:	No special emergency actions or procedures are required.
Environmental precautions:	Avoid release to the environment. Prevent spills from entering storm sewers or drains. Report release to the appropriate authorities.

Methods and materials for containment and cleaning up:	Move intact containers from the spill area. The product is a water miscible liquid. Stop leaks if it can be done safely and prevent run-off as far as possible. Small spills: Dilute spills with water, if necessary, and mop up. Place in an appropriate waste disposal container. Large spills: Prevent entry into sewers, water courses, basements, or confined areas by diking if possible. Contain and collect the spillage by mopping up and transfer to containers for salvage or disposal. Flush the area with water if appropriate. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Precautions for safe handling:	Wear protective gloves/protective clothing/eye protection, such as nitrile rubber gloves, a face shield, safety glasses and long-sleeved clothing. Do not eat, drink, or smoke when using this product. Do not touch eyes. Wash hands and face thoroughly after handling.
Conditions for safe storage:	Keep containers closed and upright to prevent leakage. Store out of direct sunlight. Store in a facility designed to contain liquid spills. Store separately from any food, feed, or drinks. Keep out of reach of children and uninformed persons.
Any incompatibilities:	The mixture 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 have been established for this mixture.

No biological limit values are available for this mixture. DO NOT deliberately ingest the mixture. Regular ingestion may cause health problems!

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




Appropriate engineering controls include good general ventilation, showers, and eye wash stations. No other control parameters are considered necessary.

9. Physical and chemical properties

Physical state	Liquid
Clarity:	Data not available
Colour:	Brown
Odour:	Not significant
Odour threshold:	Not known
Melting point/freezing point:	< 0 °C *
Boiling point (or initial point and range):	> 100 °C *
Flammability (gases, liquids, solids):	Non-flammable
Lower and upper explosion limits:	None
Lower and upper flammability limits:	None
Flash point:	Non-combustible
Autoignition temperature:	Not applicable
Decomposition temperature:	Not known
pH, neat:	Data not available
pH, aqueous dilution:	9.1
Dissociates in water, pKa:	Not determined
Kinematic viscosity (of liquids) in mm^2/s:	Approximately 1 *
Solubility in water:	Miscible with water
Solubility in a specified non-polar solvent:	Not miscible with non-polar solvents
Partition coefficient (n-octanol/water):	Not applicable
Vapour pressure (at 25 °):	< 23.8 torr (mmHg) or < 3.17 kPa *
Density and/or relative density:	Data not available
Relative vapour density:	Not known
Particle characteristics:	Not applicable
Evaporation rate:	Similar* to water

* Based on the values for water, which is the main component of the mixture.

10. Stability and reactivity

No test data is available on the reactivity of the mixture. Depending on the pH, the ingredients can exist partially or completely as simple cations (e.g., potassium) and anions (e.g., humates). The mixture is not an oxidiser and is not combustible.

The mixture is chemically stable when properly stored and handled.

The mixture is not expected to change in physical appearance over time.

There is no possibility of hazardous reactions such as polymerisation.

Do not allow the mixture to heat up excessively. Pressure, shock, static discharge, and vibrations have no known effect.

The mixture is incompatible with oxidising agents and acidic materials, including all sulphate-based formulations, calcium nitrate and acid phosphates.

The mixture is not expected to produce significant amounts of hazardous decomposition products when used, stored, or heated.

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 heterogenous 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: Inhalation of the mixture can occur during spraying. Ingestion is not a likely route of exposure, unless deliberate. Exposure to the mixture can occur through skin and eye contact.

Symptoms related to the physical, chemical, and toxicological characteristics of the mixture include irritation and redness upon skin contact. Eye contact can cause irritation, redness, and excessive tearing (epiphora).

Effects of exposure: Apart from irritation, no data on immediate, delayed, or chronic effects from short- or long-term inhalation, skin or eye exposure are available. Deliberate and regular ingestion of significant amounts of the mixture, even when diluted, may cause health effects.

Classification: Based on the available ingredient data, and the fact that the humic substance content is low, no hazards have been classified.

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 not classified for chronic aquatic toxicity. Consequently, hazards to the aquatic environment have not been classified for Humate Liquid.

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 humic substances 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 humic substances 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.

Humic substances are not readily biodegradable, based on a value of 4.9% reported for humic acid sodium salt (aerobic, exposure time 28 d), and are not expected to have any significant bio-accumulative potential (based on $logP_{ow}$).

It has been reported that humic substances have no endocrine disrupting potential.

Humic substances do not contain halocarbon molecules and thus have no ozone depletion potential.

Humic substances are not expected to have any climate change potential.

13. Disposal considerations

Avoid release to the environment apart from the intended use. 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 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.

The product consists mainly of water and no special precautions for incineration are necessary.

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 ingredients are 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 Domesticate the Requirements of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 2023, 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: 033

Date of the previous revision of this SDS: 05 July 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
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).