Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: **Mineralate ZMC-Fe**
Synonyms: Zinc Amino Acid Chelate
Manganese Amino Acid Chelate
Copper Amino Acid Chelate
Iron Amino Acid Chelate

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: 1. For further manufacturing of mineral premixes
2. Use in feed formulations to meet zinc, manganese, copper and iron requirements for livestock

1.3 Details of the supplier of the safety data sheet

Company name: NuTech Bioscience, 537 Fitch Street • Oneida, NY 13421 • Phone: 315-505-6500

Additional information: This safety data sheet pertains to the following products: CAS 7733-02-0
Mineralate ZMC-Fe

1.4 Emergency telephone number

CHEMTREC 1-800-424-9300

Section 2: Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Hazard Communication Standard (29 CFR 1910.1200)

This substance is not classified as hazardous.

2.2 Label elements

Labelling

Hazard Statements: not applicable
Safety precautions: not applicable

2.3 Other hazards

No risks worthy of mention.

Section 3: Composition/ information on ingredients

3.1 Substances

Chemical characterization (substance):

Zn AAC Mn AAC
Cu AAC Fe AAC
Zinc Amino Acid Chelate >= 5% Manganese Amino Acid Chelate >= 2%
Copper Amino Acid Chelate >= 0.25% Iron Acid Chelate >= 10%

Section 4: First Aid Measures

4.1 Description of first aid measures

After inhalation: Remove to fresh air or give oxygen.
In case of skin contact: If skin irritation exists, wash with soap and water.
After eye contact: If eye irritation exists, flush thoroughly with plain water.
After swallowing: If large amounts are ingested, get medical attention, induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

No data available

4.3 Indication of any immediate medical attention and special treatment needed

No special measures are required.

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Product is non-combustible. Extinguishing materials should therefore be selected according to surroundings.

5.2 Special hazards arising from the substance or mixture

Fires in the immediate vicinity may cause the development of dangerous vapours. In case of fire may be liberated: sulphur oxides.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.
Additional information: Hazchem-Code: -
Suppress gases/vapours/mists with water spray jet.
Do not allow water used to extinguish fire to enter drains, ground or waterways. Treat runoff as hazardous.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid contact with the substance. Avoid generation of dust. Do not breathe dust.

SECTION 6 CONTNUED:

6.2 Environmental precautions

Do not allow to penetrate into soil, waterbodies or drains.

6.3 Methods and material for containment and cleaning up

Collect dry and place in appropriate containers for disposal, cleaning.

6.4 Reference to other sections

Not required.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling: Avoid contact with the substance. Avoid generation of dust. Do not breathe dust.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep container tightly closed and dry.

Storage class: 13 = Non-combustible solids

7.3 Specific end use(s):

No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Additional information: Contains no substances with occupational exposure limit values.

DNEL

DNEL Workers, Long Term:
Inhalative: 37,6 mg/m^3.
Dermal 21,3 mg/kg/ bw/d.

DNEL Consumers, Long Term:
Inhalative: 11,1 mg/m^3.
Dermal 12,8 mg/kg/ bw/d. Oral 12,8 mg/kg/ bw/d

8.2 Exposure controls

Provide adequate ventilation, and local exhaust as needed.

Occupational exposure controls

Respiratory protection: In case of dust: Particulates filter P1 according to EN 143.

Hand protection: Protective gloves according to EN 374.
Glove material: Nitrile rubber-Layer thickness: 0,11 mm.
Breakthrough time: >480 min.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed safety glasses according to EN 166.

Body protection: Wear suitable protective clothing.

General protection and hygienemeasures:

Change contaminated clothing.
Wash hands before breaks and after work.
Work place should be equipped with a shower and an eye rinsing apparatus.

SECTION 9: Physical and chemical properties

9.1 information on basic physical and chemical properties

Physical state: solid
Color: dark brown powder
Odor: odorless
Flash point / flash point range:
non-flammable
Ignition temperature: non-flammable
Vapour pressure: low
Density: at 20 °C: 2,66 g/cm³
pH value: at 25 °C, 50 g/L: approx. 7,9
Water solubility: at 0 °C: 269 g/L at 20 °C: 360 g/L at 40 °C: 456 g/L
Thermal decomposition: 1124 °Cd or waterways. Treat runoff as

6.1 Personal precautions, protective equipment and emergency procedures

Avoid contact with the substance. Avoid generation of dust. Do not breathe dust.

SECTION 10: Stability and reactivity

10.1 Reactivity

hygroscopic

10.2 Chemical stability

Product is stable under normal conditions.

10.2 Chemical stability

No particularly hazards known.

10.4 Conditions to avoid

Keep away from heat.

10.6 Hazardous decomposition products

PFires in the immediate vicinity may cause the development of dangerous vapours. In case of fire may be liberated: sulphur oxides.

Thermal decomposition: 1124 °C

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity: LD50 Rat, oral: > 2000 mg/kg
LD50 Rat, dermal: > 2000 mg/kg
After swallowing: Following intake of large amounts: Nausea, vomiting, diarrhea.

General remarks

NOAEL dermal: 256.0 mg/kg bw/day
NOAEC inhalative: 222.0 mg/m³
NOAEL oral: 256.0 mg/kg bw/day

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: Algae toxicity:
IC50 Desmodesmus subspicatus: 2700mg/L/72h.
Bacterial toxicity:
EC50 Photobacterium phosphoreum: 84000 mg/L/30min.
Daphnia toxicity:
EC50 Daphnis magna: 1700 mg/L/24h.
Fish toxicity:
LC50 Gambusia affinis: 15500 mg/L/96h.
Source: IUCLID.

Water Hazard Class: 1 = slightly hazardous to water (WGK catalog number 366)

12.2. Persistence and degradability

Further details: Methods for the determination of biodegradability are not applicable to inorganic substances

12.4 Mobility in soil

No data available

12.6 Other adverse effects

General information: Do not allow to enter into ground-water, surface water or drains.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 06 03 14 = Wastes from the MFSU of salts and their solutions and metallic oxides.

Rcommendation: Dispose of waste according to applicable legislation.

SECTION 14: Transport information

14.1 Environmental hazards

Marine Pollutant unknown

14.2 Special precautions for user

No dangerous good in sense of these transport regulations.

14.3 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available.

14.4 U.S. DOT

Not regulated.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

National regulations - USA

TSCA Inventory: listed
TSCA HPVC: not listed

Hazard rating systems

NFPA Hazard Rating:
Health: 2 (Minimal)
Fire: 1 (Minimal)
Reactivity: 0 (Minimal)

HMIS Version III Rating:
Health: 2 (Minimal)
Flammability: 1 (Minimal)
Physical Hazard: 0 (Minimal)
Personal Protection: X = Consult your supervisor

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Further information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall **NuTech Biosciences, Inc.** be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if **NuTech Biosciences, Inc.** has been advised of the possibility of such damages.