



**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE  
COMPANY/UNDERTAKING**

**1.1 Product identifier**

Product Identifier : S-Medium  
Product Number : S503  
CAS Number : Not available  
REACH Registration Number : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration, or the registration is envisaged for a later registration deadline.

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

Identified Uses : For research use only - restricted to professional users.  
Uses Advised Against : Not for human or animal use

**1.3 Details of the supplier of the safety data sheet**

Company : Plant Biotechnologies  
Seinhuiswachter 17-19  
3034 KH Rotterdam The Netherlands  
Phone Number : +31 10323 2002  
E-mail Address : [info.eu@toku-e.com](mailto:info.eu@toku-e.com)  
Safety Data Sheet Issued by : Plant Biotechnologies

**1.4 Emergency telephone number**

Emergency Phone Number (Internat.) : +1 (352) 353-3500 (INFOTRAC, 24-Hour Number)  
Emergency Phone Number (US Only) : 1 (800) 535-5053 (INFOTRAC, 24-Hour Number)

**SECTION 2: HAZARDS IDENTIFICATION**

**2.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No. 1272/2008**

Serious eye damage/eye irritation (Category 2), H319

For the full text of the H-Statements mentioned in this section, see Section 16.

## 2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008

Hazard Pictogram(s):



**Signal Word:** Warning

### Hazard Statement(s)

H319 Causes serious eye irritation

### Precautionary Statement(s)

P264 Wash hands/skin thoroughly after handling.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P305+P351+ P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 IF eye irritation persists: Get medical advice/attention.

### Supplemental Hazard Information

No data available

## 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

| Component  | CAS no     |                                                                                                                                                                                 |
|------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Boric acid | 10043-35-3 | This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII<br>This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII |

The substance/mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

### 3.2 Mixtures

Synonym(s) : Not available  
Formula : Not available  
Molecular weight : Not available

**Hazardous ingredients according to Regulation (EC) No. 1272/2008**

| Component                                                                                   | Classification                                               | Concentration |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------|
| <b>Potassium nitrate</b>                                                                    |                                                              |               |
| CAS Number [7757-79-1]<br><br>EC Number [231-818-8]<br><br>REACH Number [01-2119488224-35]  | Ox. Sol. 3, H272                                             | 77,15 %       |
| <b>Ammonium nitrate</b>                                                                     |                                                              |               |
| CAS Number [6484-52-2]<br><br>EC Number [229-347-8]<br><br>REACH Number [01-2119490981-27]  | Ox. Sol. 3, H272<br>Eye Irrit. 2, H319                       | 7,26 %        |
| <b>2-Morpholinoethanesulphonic acid (MES monohydrate)</b>                                   |                                                              |               |
| CAS Number [145224-94-8]<br><br>EC Number [630-505-7]                                       | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>STOT SE 3, H335 | 6,36 %        |
| <b>Calcium chloride</b>                                                                     |                                                              |               |
| CAS Number [10043-52-4]<br><br>EC Number [233-140-8]<br><br>REACH Number [01-2119494219-28] | Eye Irrit. 2, H319                                           | 5,40 %        |
| <b>Sucrose</b>                                                                              |                                                              |               |
| CAS Number [57-50-1]<br><br>EC Number [200-334-9]                                           | /                                                            | 1,28 %        |
| <b>Myo-Inositol</b>                                                                         |                                                              |               |
| CAS Number [87-89-8]<br><br>EC Number [201-781-2]<br><br>REACH Number [01-2120766927-35]    | /                                                            | 0,77 %        |
| <b>Magnesium sulphate</b>                                                                   |                                                              |               |
| CAS Number [7487-88-9]<br><br>EC Number [231-298-2]<br><br>REACH Number [01-2119486789-11]  | /                                                            | 0,70 %        |

|                                                              |                                                                                                   |          |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------|
| <b>Potassium dihydrogenorthophosphate</b>                    |                                                                                                   |          |
| CAS Number [7778-77-0]                                       |                                                                                                   |          |
| EC Number [231-913-4]                                        | /                                                                                                 | 0,66 %   |
| REACH Number<br>[01-2119490224-41]                           |                                                                                                   |          |
| <b>Ammonium iron(III) citrate</b>                            |                                                                                                   |          |
| CAS Number [1185-57-5]                                       |                                                                                                   |          |
| EC Number [214-686-6]                                        | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319                                                         | 0,39 %   |
| REACH Number<br>[01-2120762150-66]                           |                                                                                                   |          |
| <b>Boric acid (substance listed on REACH Candidate List)</b> |                                                                                                   |          |
| CAS Number [10043-35-3]                                      |                                                                                                   |          |
| EC Number [233-139-2]                                        | Repr. 1B, H360FD                                                                                  | 0,0077 % |
| REACH Number<br>[01-2119486683-25]                           |                                                                                                   |          |
| <b>Zinc sulphate heptahydrate</b>                            |                                                                                                   |          |
| CAS Number [7446-20-0]                                       |                                                                                                   |          |
| EC Number [616-097-3]                                        | Acute Tox. 4 (Oral), H302<br>Eye Dam. 1, H318<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 | 0,0077 % |
| REACH Number<br>[01-2119474684-27]                           |                                                                                                   |          |
| <b>Nicotinic Acid</b>                                        |                                                                                                   |          |
| CAS Number [59-67-6]                                         |                                                                                                   |          |
| EC Number [200-441-0]                                        | Eye Irrit. 2, H319                                                                                | 0,0077 % |
| REACH Number<br>[01-2119968267-24]                           |                                                                                                   |          |
| <b>Pyridoxine hydrochloride</b>                              |                                                                                                   |          |
| CAS Number [58-56-0]                                         |                                                                                                   |          |
| EC Number [200-386-2]                                        | Eye Dam. 1, H318                                                                                  | 0,0077 % |
| REACH Number<br>[01-2120113157-67]                           |                                                                                                   |          |
| <b>Thiamine hydrochloride</b>                                |                                                                                                   |          |
| CAS Number [67-03-8]                                         |                                                                                                   |          |
| EC Number [200-641-8]                                        | Eye Irrit. 2, H319                                                                                | 0,0077 % |
| REACH Number<br>[01-2120773699-31]                           |                                                                                                   |          |

|                                    |                                                                                                                                                                                                                                                                   |          |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Calcium pantothenate , D-form      |                                                                                                                                                                                                                                                                   |          |
| CAS Number [137-08-6]              | /                                                                                                                                                                                                                                                                 | 0,0077 % |
| EC Number [205-278-9]              |                                                                                                                                                                                                                                                                   |          |
| Manganese sulphate monohydrate     |                                                                                                                                                                                                                                                                   |          |
| CAS Number [10034-96-5]            | STOT RE 2, H373<br>Aquatic Chronic 2, H411                                                                                                                                                                                                                        | 0,0008 % |
| EC Number [600-072-9]              |                                                                                                                                                                                                                                                                   |          |
| REACH Number<br>[01-2119456624-35] |                                                                                                                                                                                                                                                                   |          |
| Aluminum chloride, hexahydrate     |                                                                                                                                                                                                                                                                   |          |
| CAS Number [7784-13-6]             | Skin Corr. 1B, H314<br>Eye Dam. 1, H318                                                                                                                                                                                                                           | 0,0004 % |
| EC Number [616-520-1]              |                                                                                                                                                                                                                                                                   |          |
| Copper sulphate                    |                                                                                                                                                                                                                                                                   |          |
| CAS Number [7758-98-7]             | Acute Tox. 4 (Oral), H302<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410                                                                                                                                        | 0,0001 % |
| EC Number [231-847-6]              |                                                                                                                                                                                                                                                                   |          |
| REACH Number<br>[01-2119520566-40] |                                                                                                                                                                                                                                                                   |          |
| Nickel dichloride                  |                                                                                                                                                                                                                                                                   |          |
| CAS Number [7718-54-9]             | Acute Tox. 3 (Oral), H301<br>Skin Irrit. 2, H315<br>Skin Sens. 1, H317<br>Acute Tox. 3 (Inhalation),<br>H331<br>Resp. Sens. 1, H334<br>Muta. 2, H341<br>Carc. 1A, H350i<br>Repr. 1B, H360D<br>STOT RE 1, H372<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 | 0,0001 % |
| EC Number [231-743-0]              |                                                                                                                                                                                                                                                                   |          |
| REACH Number<br>[01-2119486973-20] |                                                                                                                                                                                                                                                                   |          |
| Biotin                             |                                                                                                                                                                                                                                                                   |          |
| CAS Number [58-85-5]               | /                                                                                                                                                                                                                                                                 | 0,0001 % |
| EC Number [200-399-3]              |                                                                                                                                                                                                                                                                   |          |
| REACH Number<br>[01-2120966349-39] |                                                                                                                                                                                                                                                                   |          |
| Potassium iodide                   |                                                                                                                                                                                                                                                                   |          |
| CAS Number [7681-11-0]             | STOT RE 1, H372                                                                                                                                                                                                                                                   | 0,0001 % |
| EC Number [231-659-4]              |                                                                                                                                                                                                                                                                   |          |
| REACH Number<br>[01-2119906339-35] |                                                                                                                                                                                                                                                                   |          |

For the full text of the H-Statements mentioned in this section, see Section 16.

## **SECTION 4: FIRST-AID MEASURES**

### **4.1 Description of first-aid measures**

#### **General information**

Consult a doctor/physician if exposed - additional medical care may be required. Show this safety data sheet to the medical provider.

#### **If inhaled**

If inhaled, move to fresh air. If not breathing, give artificial respiration. Consult a physician.

#### **In case of skin contact**

Wash skin thoroughly with soap and water. Remove any contaminated clothing. Consult a physician.

#### **In case of eye contact**

Flush eye with water. After initial flush, remove any contact lenses and continue flushing for at least 15 minutes.

#### **If swallowed**

Rinse mouth with water. Immediately call a doctor, physician, or poison control center. Never give anything by mouth to an unconscious person.

#### **Self-protection of the first aider**

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent the spread of contamination.

### **4.2 Most important symptoms/effects, acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### **4.3 Indication of any immediate medical attention and special treatment needed**

No data available

## **SECTION 5: FIRE-FIGHTING MEASURES**

### **5.1 Extinguishing media**

#### **Suitable extinguishing media**

Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### **Unsuitable extinguishing media**

No data available

### **5.2 Special hazards arising from the substance or mixture**

#### **Hazardous Combustion Products**

Carbon and nitrogen oxides, sulfur oxides, phosphorus oxides

### **5.3 Advice for firefighters**

Wear self-contained breathing apparatus if necessary.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Consult the safety measures listed in Section 7 and 8. Use personal protective equipment. Avoid breathing dust, vapors, mist or gas. Avoid direct contact with spilled substances. Ensure adequate ventilation. Avoid dust formation.

For personal protection see Section 8.

### **6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### **6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

### **6.4 Reference to other sections**

Refer to section 8 for exposure control and personal protection. Refer to section 13 for disposal information.

## **SECTION 7: HANDLING AND STORAGE**

### **7.1 Precautions for safe handling**

Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Avoid contact with skin and eyes. For precautionary statements see section 2.2

### **7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place. Protect from humidity. Recommended storage temperature: Room temperature  
Hygroscopic.

#### **Incompatibilities:**

Strong oxidizing agents

### **7.3 Specific end use(s)**

Refer to section 1.2

## **SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION**

### **8.1 Control parameters**

**Components with workplace control parameters:**  
No OEL data available

### **8.2 Exposure controls**

#### **Appropriate engineering controls:**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling this product.

## **Personal Protective Equipment (PPE):**

### **Respiratory protection**

Wear respiratory protection. Use type N95 (US) or type P1 (EN 143) dust masks as a backup to engineering controls. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### **Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal techniques to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the selected EN 374 derived from it.

### **Eye/Face protection**

Wear eye protection. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

### **Body protection**

Wear protective clothing. The type of protective equipment must be selected according to the concentration of the dangerous substance at the specific work place.

### **Environmental exposure controls**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on basic physical and chemical properties**

|                                        |   |                                 |
|----------------------------------------|---|---------------------------------|
| Appearance                             | : | White to slightly yellow powder |
| Odor                                   | : | No data available               |
| Odor Threshold                         | : | No data available               |
| pH                                     | : | No data available               |
| Melting Point/Freezing Point           | : | No data available               |
| Initial Boiling Point and Range        | : | No data available               |
| Flash Point                            | : | No data available               |
| Evaporation rate                       | : | No data available               |
| Flammability (solid, gas)              | : | No data available               |
| Upper/Lower Flammability or            |   |                                 |
| Explosive Limits                       | : | No data available               |
| Vapor Pressure                         | : | No data available               |
| Vapor Density                          | : | No data available               |
| Relative Density                       | : | No data available               |
| Solubility(ies)                        | : | Soluble in water                |
| Partition Coefficient: n-octanol/water | : | No data available               |
| Auto-Ignition Temperature              | : | No data available               |
| Decomposition Temperature              | : | No data available               |
| Viscosity                              | : | No data available               |
| Explosive Properties                   | : | No data available               |
| Oxidizing Properties                   | : | No data available               |

## 9.2 Other information

No additional information relevant to safe use of the substance.

## **SECTION 10: STABILITY AND REACTIVITY**

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Exposure to moisture

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

No data available

See Section 5 for hazardous combustion products.

## **SECTION 11. TOXICOLOGICAL INFORMATION**

The toxicological properties of this mixture have not been fully investigated. The information provided is based on data available for the active compounds.

### 11.1 Information on toxicological effects

#### **Acute Toxicity**

|                               |   |                             |   |        |   |                 |
|-------------------------------|---|-----------------------------|---|--------|---|-----------------|
| Potassium nitrate             | : | Oral LD <sub>50</sub>       | : | Rat    | : | > 2000 mg/kg    |
|                               |   | Dermal LD <sub>50</sub>     | : | Rat    | : | > 5000 mg/kg    |
|                               |   | Inhalation LC <sub>50</sub> | : | Rat    | : | > 0,527 mg/l/4h |
| Ammonium nitrate              | : | Oral LD <sub>50</sub>       | : | Rat    | : | > 2950 mg/kg    |
|                               |   | Dermal LD <sub>50</sub>     | : | Rat    | : | > 5000 mg/kg    |
|                               |   | Inhalation LC <sub>50</sub> | : | Rat    | : | > 88,8 mg/l     |
| MES monohydrate               | : | Oral LD <sub>50</sub>       | : | Rat    | : | > 2000 mg/kg    |
| Calcium chloride              | : | Oral LD <sub>50</sub>       | : | Rat    | : | 2120 mg/kg      |
|                               |   | Dermal LD <sub>50</sub>     | : | Rabbit | : | > 5000 mg/kg    |
| Sucrose                       | : | Oral LD <sub>50</sub>       | : | Rat    | : | 29700 mg/kg     |
| Myo-inositol                  | : | Oral LD <sub>50</sub>       | : | Rat    | : | 19483,68 mg/kg  |
|                               |   | Oral LD <sub>50</sub>       | : | Mouse  | : | > 10000 mg/kg   |
| Magnesium sulphate            | : | Oral LD <sub>50</sub>       | : | Rat    | : | > 2000 mg/kg    |
|                               |   | Dermal LD <sub>50</sub>     | : | Rat    | : | > 2000 mg/kg    |
| Potassium dihydrogenphosphate | : | Oral LD <sub>50</sub>       | : | Rat    | : | > 2000 mg/kg    |
|                               |   | Dermal LD <sub>50</sub>     | : | Rat    | : | > 2000 mg/kg    |
|                               |   | Inhalation LC <sub>50</sub> | : | Rat    | : | > 0,83 mg/l     |
| Ammonium iron(III) citrate    | : | Oral LD <sub>50</sub>       | : | Rat    | : | > 2000 mg/kg    |

|                                |   |                             |   |        |   |               |
|--------------------------------|---|-----------------------------|---|--------|---|---------------|
| Boric acid                     | : | Oral LD <sub>50</sub>       | : | Rat    | : | > 2600 mg/kg  |
|                                | : | Oral LD <sub>50</sub>       | : | Mouse  | : | 3450 mg/kg    |
|                                | : | Dermal LD <sub>50</sub>     | : | Rabbit | : | > 2000 mg/kg  |
|                                | : | Inhalation LC <sub>50</sub> | : | Rat    | : | 2,12 mg/l     |
| Zinc sulphate heptahydrate     | : | Oral LD <sub>50</sub>       | : | Rat    | : | 1260 mg/kg    |
| Nicotinic acid                 | : | Oral LD <sub>50</sub>       | : | Rat    | : | 7000 mg/kg    |
|                                | : | Dermal LD <sub>50</sub>     | : | Rat    | : | > 2000 mg/kg  |
|                                | : | Inhalation LC <sub>50</sub> | : | Rat    | : | > 3,8 mg/l    |
| Pyridoxine hydrochloride       | : | Oral LD <sub>50</sub>       | : | Rat    | : | > 6600 mg/kg  |
|                                | : | Oral LD <sub>50</sub>       | : | Mouse  | : | > 6000 mg/kg  |
| Thiamine hydrochloride         | : | Oral LD <sub>50</sub>       | : | Rat    | : | 12340 mg/kg   |
|                                | : | Oral LD <sub>50</sub>       | : | Mouse  | : | 13347 mg/kg   |
| Calcium pantothenate, D-form   | : | Oral LD <sub>50</sub>       | : | Rat    | : | > 10000 mg/kg |
| Manganese sulphate monohydrate | : | Oral LD <sub>50</sub>       | : | Rat    | : | 2150 mg/kg    |
|                                | : | Oral LD <sub>50</sub>       | : | Mouse  | : | 2330 mg/kg    |
|                                | : | Inhalation LC <sub>50</sub> | : | Rat    | : | > 4,45 mg/l   |
| Aluminum chloride, hexahydrate | : | Oral LD <sub>50</sub>       | : | Rat    | : | 3311 mg/kg    |
| Copper sulphate                | : | Oral LD <sub>50</sub>       | : | Rat    | : | 481 mg/kg     |
|                                | : | Dermal LD <sub>50</sub>     | : | Rat    | : | > 2000 mg/kg  |
| Nickel dichloride              | : | Oral LD <sub>50</sub>       | : | Rat    | : | 105 mg/kg     |
| Potassium iodide               | : | Dermal LD <sub>50</sub>     | : | Rat    | : | > 2000 mg/kg  |

#### **Skin Corrosion/Irritation**

Not classified

#### **Serious Eye Damage/ Eye Irritation**

Causes serious eye irritation

#### **Respiratory or Skin Sensitization**

Not classified

#### **Germ Cell Mutagenicity**

Not classified

#### **Carcinogenicity**

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen by the International Agency for Research on Cancer Monograph.

#### **Reproductive Toxicity**

Not classified

#### **Specific Target Organ Toxicity: Single Exposure**

Not classified

#### **Specific Target Organ Toxicity: Repeated Exposure**

Not classified

## Aspiration Hazard

Not classified

## Additional Information

RTECS: Not available

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Toxicity

|                               |   |              |   |           |   |                                                  |
|-------------------------------|---|--------------|---|-----------|---|--------------------------------------------------|
| Potassium nitrate             | : | LC50         | : | Fish      | : | > 98,9 mg/l -<br>Oncorhynchus mykiss             |
|                               |   | EC50         | : | Crustacea | : | 490 mg/l 48 h - Daphnia magna                    |
| Ammonium nitrate              | : | LC50         | : | Fish      | : | 447 mg/l - Cyprinus carpio                       |
|                               |   | EC50         | : | Crustacea | : | 490 mg/l 48h - Daphnia magna                     |
|                               |   | ErC50        | : | Algae     | : | > 1700 mg/l 10 days                              |
|                               |   | NOEC Chronic | : |           | : | 555 mg/l - Bullia digitalis<br>Duration: 7 d     |
| MES monohydrate               | : | LC50         | : | Fish      | : | > 108 mg/l 96 h                                  |
|                               |   | EC50         | : | Crustacea | : | > 108 mg/l 48 h                                  |
|                               |   | ErC50        | : | Algae     | : | > 108 mg/l 72 h                                  |
| Calcium chloride              | : | LC 50        | : | Fish      | : | 4630 mg/l - Pimephales promelas                  |
|                               |   | LOEC Chronic | : |           | : | 240 mg/l - Daphnia magna<br>Duration: 21 d       |
|                               |   | NOEC Chronic | : |           | : | 481 mg/l - Daphnia magna<br>Duration: 21 d       |
|                               |   | NOEC         | : | Fish      | : | 230 mg/l - Oncorhynchus mykiss<br>Duration: 25 d |
| Myo-inositol                  | : | LC50         | : | Fish      | : | 5424,33 mg/l -<br>Pimephales promelas            |
|                               |   | EC50         | : | Algae     | : | > 36600 mg/l 72 h                                |
| Magnesium sulphate            | : | LC 50        | : | Fish      | : | 680 mg/l - Pimephales promelas                   |
| Potassium dihydrogenphosphate | : | LC50         | : | Fish      | : | > 100 mg/l -<br>Oncorhynchus mykiss              |
|                               |   | EC50         | : | Crustacea | : | > 100 mg/l 48h - Daphnia magna                   |
|                               |   | EC50         | : | Algae     | : | > 100 mg/l 72 h -<br>Desmodesmus                 |
| Boric acid                    | : | LC50         | : | Fish      | : | 79,7 mg/l - Pimephales promelas                  |
|                               |   | LC50         | : | Fish      | : | 74 mg/l - Limanda limanda                        |
|                               |   | EC50         | : | Crustacea | : | 133 mg/l                                         |
|                               |   | EC50         | : | Algae     | : | 66 mg/l 72 h -<br>Phaeodactylum                  |
|                               |   | EC50         | : | Algae     | : | 54 mg/l 72 h -<br>Phaeodactylum                  |

|                                |        |        |             |                                                       |
|--------------------------------|--------|--------|-------------|-------------------------------------------------------|
|                                | NOEC : | Fish   | :           | 6,4 mg/l - Danio rerio -<br>Chronic<br>Duration: 34 d |
| Zinc sulphate heptahydrate     | :      | EC50 : | Crustacea : | 12 mg/l                                               |
|                                |        | EC50 : | Algae :     | 0,05 – 65 mg/l 72 h<br>Source: GESTIS                 |
| Nicotinic acid                 | :      | LC50 : | Fish :      | 520 mg/l - Salmo trutta                               |
|                                |        | EC50 : | Crustacea : | 77 mg/l - Daphnia magna                               |
|                                |        | EC50 : | Algae :     | 89933 mg/l 72 h -<br>Desmodesmus                      |
|                                |        | EC50 : | Algae :     | 105666 mg/l 72 h -<br>Desmodesmus                     |
|                                |        | EC50 : | Algae :     | 67956 mg/l 96 h -<br>Desmodesmus                      |
|                                |        | EC50 : | Algae :     | 114786 mg/l 96 h -<br>Desmodesmus                     |
| Pyridoxine hydrochloride       | :      | LC50 : | Fish :      | > 100 mg/l Oncorhynchus<br>mykiss                     |
|                                |        | EC50 : | Crustacea : | > 100 mg/l 48h - Daphnia<br>magna                     |
|                                |        | EC50 : | Algae :     | 72 mg/l 72 h -<br>Desmodesmus                         |
| Thiamine hydrochloride         | :      | LC50 : | Fish :      | > 100 mg/l Oncorhynchus<br>mykiss                     |
|                                |        | EC50 : | Crustacea : | > 100 mg/l - Daphnia<br>magna                         |
|                                |        | EC50 : | Algae :     | > 100 mg/l 72h -<br>Desmodesmus                       |
| Manganese sulphate monohydrate | :      | LC50 : | Fish :      | 30,6 mg/l - Pimephales<br>promelas                    |
|                                |        | EC50 : | Crustacea : | 8,3 mg/l                                              |
|                                |        | EC50 : | Algae :     | 61 mg/l 72 h -<br>Desmodesmus                         |
| Nickel dichloride              | :      | LC50 : | Fish :      | 1,3 mg/l 96 h - Cyprinus<br>carpio                    |
|                                |        | EC50 : | Crustacea : | 0,51 mg/l 48 h - Daphnia<br>magna                     |
| Biotin                         | :      | EC50 : | Crustacea : | > 100 mg/l 48 h - Daphnia<br>magna                    |
| Cobalt dichloride              | :      | EC50 : | Crustacea : | > 5,89 mg/l - Daphnia<br>magna                        |

## 12.2 Persistence and degradability

|                              |   |                                 |                          |
|------------------------------|---|---------------------------------|--------------------------|
| Ammonium nitrate             | : | Persistence and degradability : | Not established          |
| Thiamine hydrochloride       | : | Persistence and degradability : | Product is biodegradable |
|                              |   | Biodegradation :                | 74 % (7 d)               |
| Pyridoxine hydrochloride     | : | Biodegradation :                | 94 % (28 d, OECD 301E)   |
| Nicotinic Acid               | : | Persistence and degradability : | Product is biodegradable |
|                              |   | BOD (% of ThOD) :               | 100 % ThOD               |
|                              |   | Biodegradation :                | 100 %                    |
| Sucrose                      | : | Persistence and degradability : | Product is biodegradable |
| Calcium pantothenate, D-form | : | Biodegradation :                | 99 % (28 d)              |
| Biotin                       | : | Persistence and degradability : | Minimally biodegradable  |

### 12.3 Bioaccumulative potential

Boric acid

Partition coefficient n-octanol/water (Log Pow) : 0,18

Calcium chloride

Partition coefficient n-octanol/water (Log Pow) : 0,0500006

Thiamine hydrochloride

Partition coefficient n-octanol/water (Log Pow) : < -3,04 at 22,5 °C

Pyridoxine hydrochloride

Partition coefficient n-octanol/water (Log Pow) : -0,7 at 20 °C, pH 7

Nicotinic Acid

Partition coefficient n-octanol/water (Log Pow) : -2,43 at 25 °C (OECD Test 107)

Bioaccumulative potential : No bioaccumulation

Ammonium nitrate

Bioaccumulative potential : Not established

MES monohydrate

Partition coefficient n-octanol/water (Log Pow) : -2,2 at 20 °C

Sucrose

Partition coefficient n-octanol/water (Log Pow) : -3,7

Bioaccumulative potential : Bioaccumulation unlikely

Calcium pantothenate, D-form

Partition coefficient n-octanol/water (Log Pow) : -5,35

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

| Component  | CAS no     |                                                                                                                                                                                 |
|------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Boric acid | 10043-35-3 | This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII<br>This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII |

### 12.6 Other adverse effects

No data available

In the absence of complete ecological information, treat product as environmentally  
Use proper storage, handling, and disposal to prevent unintentional release into the

## **SECTION 13: DISPOSAL CONSIDERATIONS**

### 13.1 Waste treatment methods

#### **Product**

Offer surplus and non-recyclable products to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Avoid disposal of material in drains or sewers.

Waste material must be disposed of in accordance with the Directive on Waste 2008/98/EC as well as other national and local regulations.

### Contaminated Packaging

Dispose of as unused product.

## **SECTION 14: TRANSPORT INFORMATION**

|      |                            | ADR/RID             | IMDG                 | IATA                |
|------|----------------------------|---------------------|----------------------|---------------------|
| 14.1 | UN Number                  | -                   | -                    | -                   |
| 14.2 | UN Proper Shipping Name    | Not Dangerous Goods | Not Dangerous Goods  | Not Dangerous Goods |
| 14.3 | Transport Hazard Class(es) | -                   | -                    | -                   |
| 14.4 | Packing Group              | -                   | -                    | -                   |
| 14.5 | Environmental Hazards      | No                  | Marine Pollutant: No | No                  |

### **14.6 Special precautions for user**

#### **Further Information**

No data available

### **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

## **SECTION 15: REGULATORY INFORMATION**

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

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 and Annex II No. 2020/878

#### **Authorizations and/or restrictions on use**

Restricted to professional users.

### **15.2 Chemical safety assessment**

For this product a chemical safety assessment was not carried out.

## **SECTION 16: OTHER INFORMATION**

### **Full text of H-Statements referred to under sections 2 and 3**

|      |                                                                           |
|------|---------------------------------------------------------------------------|
| H272 | May intensify fire; oxidizer                                              |
| H301 | Toxic if swallowed                                                        |
| H302 | Harmful if swallowed                                                      |
| H314 | Causes severe skin burns and eye damage                                   |
| H315 | Causes skin irritation                                                    |
| H317 | May cause an allergic skin reaction                                       |
| H318 | Causes serious eye damage                                                 |
| H319 | Causes serious eye irritation                                             |
| H331 | Toxic if inhaled                                                          |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled |

|        |                                                                   |
|--------|-------------------------------------------------------------------|
| H335   | May cause respiratory irritation                                  |
| H341   | Suspected of causing genetic defects                              |
| H350i  | May cause cancer by inhalation                                    |
| H360D  | May damage the unborn child                                       |
| H360FD | May damage fertility. May damage the unborn child                 |
| H372   | Causes damage to organs through prolonged or repeated exposure    |
| H373   | May cause damage to organs through prolonged or repeated exposure |
| H400   | Very toxic to aquatic life                                        |
| H410   | Very toxic to aquatic life with long lasting effects              |
| H411   | Toxic to aquatic life with long lasting effects                   |

### **Abbreviations and acronyms**

ADR/RID: European Agreements Concerning the International Carriage of Dangerous Goods by Road (ADR) and Rail (RID)  
CAS No: Chemical Abstracts Service number  
EC: European Commission  
EC No: European Commission number  
EHS: Environmentally Hazardous Substance  
EU: European Union  
H-Statement: Hazard Statement  
IARC: International Agency for Research on Cancer  
IATA: International Air Transport Association  
IBC: International Bulk Chemical  
IMDG: International Maritime Dangerous Goods Code  
LC50: Lethal concentration, 50%  
LD50: Median Lethal dose  
MARPOL 73/78: International Convention for the Prevention of Pollution from Ships  
NIOSH: National Institute for Occupation Safety and Health  
OEL: Occupational Exposure Limit  
PBT: Persistent, Bioaccumulative and Toxic  
REACH: Registration, Evaluation, Authorisation and restrictions of Chemicals  
RTECS: Registry of Toxic Effects of Chemical Substances  
SDS: Safety Data Sheet  
UN: United Nations  
vPvB: Very Persistent and Very Bioaccumulative

### **Further information**

Revision Date: 28-05-2026

The above information is based upon the present state of our knowledge and is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information is believed to be correct but does not purport to be all inclusive. It does not represent any guarantees of the properties of the product. TOKU-E Company shall not be held liable for damage or injury resulting from contact, handling, or storage of the above product.