

# SAFETY DATA SHEET



Kjeldahl Tablets ECO

## Section 1. Identification

- GHS product identifier** : Kjeldahl Tablets ECO
- Other means of identification** : Article Number: 11057983
- Product use** : Industrial use as laboratory agent.
- Supplier's details** : BUCHI Corporation  
19 Lukens Drive, Suite 400  
New Castle, DE 19720  
United States  
Phone +1 302 652 3000  
Fax +1 302 652 8777
- e-mail address of person responsible for this SDS** : application@buchi.com
- Emergency telephone number (with hours of operation)** : Swiss Toxicological Information Centre: in Switzerland: 145, from abroad: +41 44 251 51 51 (24 h)

## Section 2. Hazards identification

- OSHA/HCS status** : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
- Classification of the substance or mixture** : Not classified.
- GHS label elements**
- Signal word** : No signal word.
- Hazard statements** : No known significant effects or critical hazards.
- Precautionary statements**
- Prevention** : Not applicable.
- Response** : Not applicable.
- Storage** : Not applicable.
- Disposal** : Not applicable.
- Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Article Number: 11057983

| Ingredient name               | %        | CAS number |
|-------------------------------|----------|------------|
| Potassium sulfate             | 99 - 100 | 7778-80-5  |
| Copper sulphate penta-hydrate | <0.01    | 7758-99-8  |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

## Section 3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

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

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : Do not use water jet.

**Specific hazards arising from the chemical** : No specific fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
sulfur oxides  
metal oxide/oxides

## Section 5. Fire-fighting measures

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Remark (Explosibility)** : Not considered to be a product presenting a risk of explosion.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

| Ingredient name               | Exposure limits |
|-------------------------------|-----------------|
| Potassium sulfate             | None.           |
| Copper sulphate penta-hydrate | None.           |

## Section 8. Exposure controls/personal protection

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.  
Suitable Material: nitrile rubber.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.  
**Recommended:** Ensure an MSHA/NIOSH-approved respirator or equivalent is used.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Solid. [Tablet.]
- Color** : Not available.
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : 5.5 to 7.5 (main component).
- Melting point** : 1067°C (1952.6°F) (main component).
- Boiling point** : 1689°C (3072.2°F)
- Flash point** : Not available.
- Evaporation rate** : Not applicable.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.

## Section 9. Physical and chemical properties

|   |  |
|---|--|
| <b>Relative density</b>                       | : Not available.   |
| <b>Density</b>                                | : 2.66 g/cm <sup>3</sup> (main component).                       |
| <b>Solubility</b>                             | : Not available.   |
| <b>Solubility in water</b>                    | : >10000 g/l (main component).                                   |
| <b>Partition coefficient: n-octanol/water</b> | : Not available.   |
| <b>Auto-ignition temperature</b>              | : Not available.   |
| <b>Decomposition temperature</b>              | : Not available.   |
| <b>Viscosity</b>                              | : Not available.   |
| <b>Explosive properties</b>                   | : Not considered to be a product presenting a risk of explosion. |
| <b>Oxidizing properties</b>                   | : No oxidizing ingredients present.                              |

## Section 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactivity</b>                         | : No specific test data related to reactivity available for this product or its ingredients.                            |
| <b>Chemical stability</b>                 | : The product is stable.  |
| <b>Possibility of hazardous reactions</b> | : Under normal conditions of storage and use, hazardous reactions will not occur.                                       |
| <b>Conditions to avoid</b>                | : Keep away from heat and direct sunlight. Protect from moisture.   |
| <b>Incompatible materials</b>             | : Reactive or incompatible with the following materials: Metal powder. Magnesium powder. Keep away from acids or bases. |
| <b>Hazardous decomposition products</b>   | : Under normal conditions of storage and use, hazardous decomposition products should not be produced.                  |

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

| Product/ingredient name       | Result      | Species            | Dose        | Exposure |
|-------------------------------|-------------|--------------------|-------------|----------|
| Potassium sulfate             | LD50 Dermal | Rat                | >2000 mg/kg | -        |
|                               | LD50 Oral   | Rat                | >2000 mg/kg | -        |
| Copper sulphate penta-hydrate | LD50 Dermal | Rat - Male, Female | >2000 mg/kg | -        |
|                               | LD50 Oral   | Rat - Male, Female | 481 mg/kg   | -        |

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

#### Irritation/Corrosion

| Product/ingredient name       | Result                             | Species | Score | Exposure | Observation |
|-------------------------------|------------------------------------|---------|-------|----------|-------------|
| Potassium sulfate             | Skin - Non-irritating to the skin. | Human   | -     | -        | -           |
|                               | Eyes - Non-irritating to the eyes. | Rabbit  | -     | -        | -           |
| Copper sulphate penta-hydrate | Skin - Non-irritating to the skin. | Rabbit  | -     | -        | -           |
|                               | Eyes - Severe irritant             | Rabbit  | -     | -        | -           |

## Section 11. Toxicological information

### Conclusion/Summary

**Skin** : Based on available data, the classification criteria are not met.

**Eyes** : Based on available data, the classification criteria are not met.

### Sensitization

| Product/ingredient name       | Route of exposure | Species    | Result          |
|-------------------------------|-------------------|------------|-----------------|
| Potassium sulfate             | skin              | Mouse      | Not sensitizing |
| Copper sulphate penta-hydrate | skin              | Guinea pig | Not sensitizing |

### Conclusion/Summary

**Skin** : Based on available data, the classification criteria are not met.

### Mutagenicity

| Product/ingredient name       | Test     | Experiment  | Result   |
|-------------------------------|----------|---|----------|
| Potassium sulfate             | OECD 471 | Experiment: In vitro<br>Subject: Bacteria                         | Negative |
|                               | OECD 473 | Experiment: In vitro<br>Subject: Mammalian-Animal<br>Cell: Germ   | Negative |
| Copper sulphate penta-hydrate | OECD 471 | Experiment: In vitro<br>Subject: Bacteria                         | Negative |
|                               | OECD 486 | Experiment: In vivo<br>Subject: Mammalian-Animal<br>Cell: Somatic | Negative |

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

### Carcinogenicity

| Product/ingredient name | Result          | Species    | Dose               | Exposure  |
|-------------------------|-----------------|------------|--------------------|-----------|
| Potassium sulfate       | Negative - Oral | Rat - Male | 256 mg/kg<br>NOAEL | 104 weeks |

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

### Reproductive toxicity

| Product/ingredient name       | Maternal toxicity | Fertility | Developmental toxin | Species            | Dose                           | Exposure |
|-------------------------------|-------------------|-----------|---------------------|--------------------|--------------------------------|----------|
| Potassium sulfate             | Negative          | Negative  | Negative            | Rat - Male, Female | Oral:<br>>1500 mg/<br>kg NOAEL | -        |
| Copper sulphate penta-hydrate | Negative          | Negative  | Negative            | Rat                | Oral: 23.6<br>mg/kg<br>NOAEL   | -        |

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

### Teratogenicity

| Product/ingredient name       | Result          | Species      | Dose          | Exposure |
|-------------------------------|-----------------|--------------|---------------|----------|
| Copper sulphate penta-hydrate | Negative - Oral | Rat - Female | 6 mg/kg NOAEL | 28 days  |

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

## Section 11. Toxicological information

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

**Eye contact** : No known significant effects or critical hazards.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : No known significant effects or critical hazards.  
**Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : No specific data.  
**Inhalation** : No specific data.  
**Skin contact** : No specific data.  
**Ingestion** : No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

### Potential chronic health effects

| Product/ingredient name       | Result                 | Species                 | Dose        | Exposure                 |
|-------------------------------|------------------------|-------------------------|-------------|--------------------------|
| Potassium sulfate             | Sub-chronic NOAEL Oral | Rat - Male,<br>Female   | >1500 mg/kg | -                        |
| Copper sulphate penta-hydrate | Sub-chronic NOAEL Oral | Mouse - Male,<br>Female | 1000 ppm    | 92 days; 7 days per week |

**Conclusion/Summary** : Based on available data, the classification criteria are not met.  
**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Teratogenicity** : No known significant effects or critical hazards.  
**Developmental effects** : No known significant effects or critical hazards.  
**Fertility effects** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

| Route | ATE value  |
|-------|------------|
| Oral  | 9615 mg/kg |

## Section 12. Ecological information

### Toxicity

| Product/ingredient name       | Result                            | Species                 | Exposure |
|-------------------------------|-----------------------------------|-------------------------|----------|
| Potassium sulfate             | Acute EC50 890 mg/l Fresh water   | Daphnia - Daphnia magna | 48 hours |
|                               | Acute IC50 2900 mg/l Fresh water  | Algae                   | 72 hours |
|                               | Acute LC50 3550 mg/l Fresh water  | Fish                    | 96 hours |
| Copper sulphate penta-hydrate | Acute EC50 0.024 mg/l Fresh water | Daphnia                 | 48 hours |
|                               | Acute LC50 0.6 mg/l Fresh water   | Fish                    | 96 hours |

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

### Persistence and degradability

**Conclusion/Summary** : Not applicable.

### Bioaccumulative potential

Not available.

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

**Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

|                                   | DOT Classification | TDG Classification | Mexico Classification | ADR/RID        | IMDG           | IATA           |
|-----------------------------------|--------------------|--------------------|-----------------------|----------------|----------------|----------------|
| <b>UN number</b>                  | Not regulated.     | Not regulated.     | Not regulated.        | Not regulated. | Not regulated. | Not regulated. |
| <b>UN proper shipping name</b>    | -                  | -                  | -                     | -              | -              | -              |
| <b>Transport hazard class(es)</b> | -                  | -                  | -                     | -              | -              | -              |
| <b>Label</b>                      |                    |                    |                       |                |                |                |
| <b>Packing group</b>              | -                  | -                  | -                     | -              | -              | -              |



## Section 14. Transport information

| Environmental hazards | No. | No. | No. | No. | Marine Pollutant: No | No. |
|-----------------------|-----|-----|-----|-----|----------------------|-----|
|-----------------------|-----|-----|-----|-----|----------------------|-----|

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to Annex II of MARPOL and the IBC Code** : Not applicable.

## Section 15. Regulatory information

**U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
**Clean Water Act (CWA) 307:** Copper(II) sulfate pentahydrate  
**Clean Water Act (CWA) 311:** Copper(II) sulfate pentahydrate

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Not applicable.

#### Composition/information on ingredients

| Name                          | %     | Classification  |
|-------------------------------|-------|---|
| Copper sulphate penta-hydrate | <0.01 | ACUTE TOXICITY (oral) - Category 4<br>SERIOUS EYE DAMAGE - Category 1 |

### State regulations

**Massachusetts** : None of the components are listed.

**New York** : None of the components are listed.

**New Jersey** : None of the components are listed.

**Pennsylvania** : None of the components are listed.

### California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol (Annexes A, B, C, E)

## Section 15. Regulatory information

Not listed.

### [Stockholm Convention on Persistent Organic Pollutants](#)

Not listed.

### [Rotterdam Convention on Prior Informed Consent \(PIC\)](#)

Not listed.

### [UNECE Aarhus Protocol on POPs and Heavy Metals](#)

Not listed.

### [Inventory list](#)

|                          |  |
|--------------------------|--|
| <b>Australia</b>         | : All components are listed or exempted.                                   |
| <b>Canada</b>            | : All components are listed or exempted.                                   |
| <b>China</b>             | : All components are listed or exempted.                                   |
| <b>Europe</b>            | : All components are listed or exempted.                                   |
| <b>Japan</b>             | : <b>Japan inventory (ENCS):</b><br>All components are listed or exempted. |
| <b>New Zealand</b>       | : All components are listed or exempted.                                   |
| <b>Philippines</b>       | : All components are listed or exempted.                                   |
| <b>Republic of Korea</b> | : All components are listed or exempted.                                   |
| <b>Taiwan</b>            | : All components are listed or exempted.                                   |
| <b>United States</b>     | : All components are listed or exempted.                                   |

## Section 16. Other information

### [National Fire Protection Association \(U.S.A.\)](#)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

### [Procedure used to derive the classification](#)

| Classification  | Justification |
|-----------------|---------------|
| Not classified. |               |

### [History](#)

|                                       |              |
|---------------------------------------|--------------|
| <b>Date of printing</b>               | : 01/09/2019 |
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| <b>Date of previous issue</b>         | : 09/17/2013 |
| <b>Version</b>                        | : 2          |

## Section 16. Other information

|                             |  |
|-----------------------------|--|
| <b>Key to abbreviations</b> | : ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road<br>ATE = Acute Toxicity Estimate<br>BCF = Bioconcentration Factor<br>DOT = Department of Transportation<br>GHS = Globally Harmonized System of Classification and Labelling of Chemicals<br>IATA = International Air Transport Association<br>IBC = Intermediate Bulk Container<br>IMDG = International Maritime Dangerous Goods<br>LogPow = logarithm of the octanol/water partition coefficient<br>MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)<br>RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail<br>TDG = Transportation of Dangerous Goods<br>UN = United Nations |
|-----------------------------|--|

**References** : Not available.

✔ Indicates information that has changed from previously issued version.

### Notice to reader

**To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.**

**Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.**