

Commercial Product Name: **Kjeldahl Tablets Copper Micro**

Revision date: 17.09.2013

Article-No.: 11057985

Version: 1.0/en

Print date: 17.09.2013

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**Commercial Product Name           **Kjeldahl Tablets Copper Micro****1.2 Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses            Use as laboratory reagent

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

Company designation                BÜCHI Labortechnik AG  
 Meierseggstrasse 40  
 CH - 9230 Flawil  
 Telephone: +41 71 394 63 63  
 FAX: +41 71 394 65 65  
 Email: schweiz@buchi.com  
 Internet: www.buchi.com

E-mail (competent person)        kjeldahl.application@buchi.com

**1.4 Emergency telephone number**

Emergency telephone number        Swiss Toxicological Information Centre: in Switzerland: 145, from abroad: +41 44 251 51 51 (24 h)

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No. 1272/2008    Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Acute 1; H400 Aquatic Chronic 1; H410

Classification according to Directive 67/548/EEC / 1999/45/EEC    N; R50/53

**2.2 Label elements**

Hazard pictogram



GHS07



GHS09

Signal word

Warning

H-statement(s)

H315: Causes skin irritation.  
 H319: Causes serious eye irritation.  
 H410: Very toxic to aquatic life with long lasting effects.

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**P-statement(s)**

P273: Avoid release to the environment.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection.  
 P302+P352: IF ON SKIN: Wash with plenty of soap and water.  
 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.  
 P362: Take off contaminated clothing and wash before reuse.  
 P391: Collect spillage.  
 P501: Dispose of contents/container according to local / regional / international legislation.

**2.3 Other hazards****Hazard precautions**

This mixture contains no substance where the PBT-/vPvB criteria of REACH, annex XIII apply.

**SECTION 3: Composition/information on ingredients****Chemical characterization**

Mixtures

**Hazardous ingredients**

| Ingredient                      |  | Classification (EEC) No 67/548  | Concentration               |
|---------------------------------|--|---|-----------------------------|
|                                 |  | Classification (EC) 1272/2008   |                             |
| Potassium sulfate               | CAS No.: 7778-80-5<br>EC-No.: 231-915-5<br>REACH No.:<br>01-2119489441-34                            | -<br>-  | 60.0 - 100.0 %<br>by weight |
| Copper(II) sulfate pentahydrate | CAS No.: 7758-99-8<br>EC-No.: 231-847-6<br>Index-No.: 029-004-00-0<br>REACH No.:<br>01-2119520566-40 | Xn; R22 Xi; R36/38 N; R50-53<br>Acute Tox. 4 *; H302 Eye Irrit. 2; H319 Skin Irrit. 2; H315 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 | 5.0 - 10.0 % by weight      |

**Other data**

Full text of R-, H- and EUH-phrases: see section 16.

**SECTION 4: First aid measures****4.1 Description of first aid measures****General advice**

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

**If inhaled**

If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of respiratory tract irritation, consult a physician.

**In case of skin contact**

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.

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In case of eye contact                      In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing.

If swallowed                                      Rinse mouth immediately and drink plenty of water.

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

Symptoms    The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11. Further important symptoms and effects are so far not known.

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

Immediate medical attention              First Aid, decontamination, treatment of symptoms.

### **SECTION 5: Firefighting measures**

#### **5.1 Extinguishing media**

Suitable extinguishing media              The product itself does not burn. Co-ordinate fire-fighting measures to the fire surroundings.

Extinguishing media which must not be used for safety reasons          No data available. Co-ordinate fire-fighting measures to the fire surroundings.

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

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases              Thermal decomposition can lead to the escape of irritating gases and vapours. Hazardous decomposition products: Sulphur oxides. Inhaling hazardous decomposing products can cause serious health damage.

#### **5.3 Advice for firefighters**

Special protective equipment for firefighting                      Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information on fire-fighting              Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

### **SECTION 6: Accidental release measures**

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

Personal precautions                          Avoid contact with skin, eyes and clothes. Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Wear personal protection equipment. (see chapter 8).

#### **6.2 Environmental precautions**

Environmental precautions                  Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Retain contaminated washing water and dispose it.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up                      Take up mechanically. Avoid generation of dust. Collect in closed and suitable containers for disposal.

### 6.4 Reference to other sections

Reference to other sections                See protective measures under point 7 and 8. Disposal: see section 13

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling                    Avoid generation of dust. Provide adequate ventilation as well as local exhaustion at critical locations. Dust should be exhausted directly at the point of origin. Avoid contact with skin and eyes.

Advice on protection against fire and explosion    not explosive.

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

Storage space and container requirements    Keep container tightly closed in a cool, well-ventilated place. Keep/Store only in original container.

Hints on storage assembly                Keep away from strongly acidic and alkaline materials as well as oxidizers.

Storage specifications                    Keep container tightly closed in a cool, well-ventilated place. Keep/Store only in original container.

### 7.3 Specific end use(s)

Specific use(s)                                See chapter 1.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Potassium sulfate

#### DNEL

| Value                  | Exposure type                               | Source |
|------------------------|---|--------|
| 21.3 mg/kg bw/day      | Worker – dermal, long-term – systemic       | 103    |
| 37.6 mg/m <sup>3</sup> | Worker – inhalative, long-term – systemic   | 103    |
| 12.8 mg/kg bw/day      | Consumer – dermal, long-term – systemic     | 103    |
| 11.1 mg/m <sup>3</sup> | Consumer – inhalative, long-term – systemic | 103    |
| 12.8 mg/kg bw/day      | Consumer – oral, long-term – systemic       | 103    |

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**PNEC**

| Value      | Compartment          | Source |
|------------|----------------------|--------|
| 0.68 mg/L  | freshwater           | 103    |
| 0.068 mg/L | marine water         | 103    |
| 6.8 mg/L   | intermittent release | 103    |
| 10 mg/L    | STP                  | 103    |

103 - ECHA

**Copper(II) sulfate pentahydrate****PNEC**

| Value                | Compartment         | Source |
|----------------------|---------------------|--------|
| 0.0078 mg/L          | freshwater          | 103    |
| 0.0052 mg/L          | marine water        | 103    |
| 0.23 mg/L            | STP                 | 103    |
| 87 mg/kg dry weight  | freshwater sediment | 103    |
| 676 mg/kg dry weight | marine sediment     | 103    |
| 65 mg/kg dry weight  | Soil                | 103    |

103 - ECHA

**8.2 Exposure controls**

|   |   |
|---|---|
| Respiratory protection                  | In case of inadequate ventilation wear respiratory protection. Wear breathing apparatus if exposed to vapours/dusts/aerosols. particle filter device (DIN EN 143), Filter type: P1.   |
| Hand protection                         | Wear suitable gloves. (DIN EN 374). The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. Breakthrough times and swelling properties of the material must be taken into consideration. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. |
| Eye protection                          | Wear eye glasses with side protection according to EN 166.  |
| Skin and body protection                | Wear suitable protective clothing and eye/face protection.  |
| General protective and hygiene measures | When using do not eat, drink or smoke. Separate storage of work clothes. Wash contaminated clothing prior to re-use. Wash hands and face before breaks and after work and take a shower if necessary.   |
| Engineering measures                    | Provide good ventilation.   |

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

|                |           |
|----------------|-----------|
| Physical state | solid     |
| Form           | Tablets   |
| Colour         | blue      |
| Odour          | odourless |

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|   |  |
|---|--|
| Odour threshold                                     | No data available                                  |
| pH  | ca. 7  |
| Temperature:  | 25 °C  |
| Remarks:  | Data apply to the main component.                  |
| Melting point [°C] / Freezing point [°C]            | 1067 °C  |
| Remarks:  | Data apply to the main component.                  |
| Boiling point [°C]                                  | No data available                                  |
| Flash point [°C]                                    | No data available                                  |
| Evaporation rate [kg/(s*m <sup>2</sup> )]           | Not applicable                                     |
| Flammability (solid, gas)                           | No data available                                  |
| Explosion limits [Vol-%]                            |  |
| Remarks:  | No data available                                  |
| Vapour pressure [kPa]                               | Not applicable                                     |
| Density [g/cm <sup>3</sup> ]                        | 2.66 g/cm <sup>3</sup>                             |
| Remarks:  | Data apply to the main component.                  |
| Water solubility [g/l]                              | very soluble (>10000 mg/L)                         |
| Remarks:  | Data apply to the main component.                  |
| Partition coefficient n-octanol / water (log P O/W) | No data available                                  |
| Autoignition temperature [°C]                       | No data available                                  |
| Autoinflammability                                  | No data available                                  |
| Decomposition temperature [°C]                      | No data available                                  |
| Viscosity, dynamic [kg/(m*s)]                       | not applicable                                     |
| Risk of explosion.                                  | not explosive. (Data apply to the main component.) |
| Oxidising properties                                | Not oxidising. (Data apply to the main component.) |

## **SECTION 10: Stability and reactivity**

### **10.1 Reactivity**

Reactivity                                      The product is stable if stored and handled as prescribed/indicated.

### **10.2 Chemical stability**

Chemical stability                              The product is stable if stored and handled as prescribed/indicated.

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**10.3 Possibility of hazardous reactions**

Hazardous reactions No hazards to be specially mentioned.

**10.4 Conditions to avoid**

Conditions to avoid Protect from heat and direct sunlight. Protect from moisture.

**10.5 Incompatible materials**

Materials to avoid Metal powder. magnesium powder (pyrophoric).

**10.6 Hazardous decomposition products**

Hazardous decomposition products Hazardous decomposition byproducts may form with exposure to high temperatures. Sulphur oxides.

**SECTION 11: Toxicological information****11.1 Information on toxicological effects**

Oral toxicity [mg/kg]

| Value  | Test species | Test method | Remarks   |
|--|--------------|-------------|---|
| LD50: 6600 mg/kg                             | Rat.         |             | test substance: Potassium sulfate.  |
| LD50: 960 mg/kg                              | Rat.         | OECD 401    | test substance: Copper(II) sulfate pentahydrate.  |
| Virtually nontoxic after a single ingestion. |              |             | The product has not been tested. The statement is derived from the properties of the single components. |

Dermal toxicity [mg/kg]

| Value   | Test species | Test method | Remarks   |
|---|--------------|-------------|---|
| LD50: > 2000 mg/kg                              | Rat.         | OECD 402    | test substance: Potassium sulfate.  |
| LD50: > 2000 mg/kg                              | Rat.         | OECD 402    | test substance: Copper(II) sulfate pentahydrate.  |
| Virtually nontoxic after a single skin contact. |              |             | The product has not been tested. The statement is derived from the properties of the single components. |

Inhalative toxicity [mg/l] No data available.

Remarks: The product has not been tested.

Irritant effect on skin

| Value            | Test species | Test method         | Remarks   |
|------------------|--------------|---------------------|---|
| Not an irritant. |              | In vitro skin test. | test substance: Potassium sulfate.  |
| Not an irritant. | Rabbit.      | OECD 404.           | test substance: Copper(II) sulfate pentahydrate.                                    |
| Irritant.        |              |                     | test substance: Copper(II) sulfate pentahydrate. Harmonised (legal) classification. |

Safety Data Sheet as per regulation (EC) 1907/2006



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| Value     | Test species | Test method | Remarks   |
|-----------|--------------|-------------|---|
| Irritant. |              |             | The product has not been tested. The statement is derived from the properties of the single components. |

Irritant effect on eyes

| Value                          | Test species | Test method | Remarks   |
|--------------------------------|--------------|-------------|---|
| Not an irritant.               | Rabbit.      | OECD 405.   | test substance: Potassium sulfate.  |
| Causes serious eye irritation. | Rabbit.      | OECD 405.   | test substance: Copper(II) sulfate pentahydrate.  |
| Causes serious eye irritation. |              |             | The product has not been tested. The statement is derived from the properties of the single components. |

Sensitization

| Value            | Test species | Test method | Remarks   |
|------------------|--------------|-------------|---|
| not sensitising. | Mouse.       | OECD 429.   | test substance: Potassium sulfate.  |
| not sensitising. | Guinea pig.  | OECD 406.   | test substance: Copper(II) sulfate pentahydrate.  |
| not sensitising. |              |             | The product has not been tested. The statement is derived from the properties of the single components. |

Carcinogenic effects

| Value  | Test species | Test method | Remarks                            |
|--|--------------|-------------|------------------------------------|
| negative.  | Rat.         | OECD 453.   | test substance: Potassium sulfate. |
| Data are not available for all ingredients of the product. |              |             | The product has not been tested.   |

Mutagenicity

| Value     | Test species            | Test method           | Remarks   |
|-----------|-------------------------|-----------------------|---|
| negative. | Salmonella typhimurium. | OECD 471 (Ames test). | test substance: Potassium sulfate.  |
| negative. | Salmonella typhimurium. | OECD 471 (Ames test). | test substance: Copper(II) sulfate pentahydrate.  |
| negative. | Rat.                    | OECD 486.             | test substance: Copper(II) sulfate pentahydrate.  |
| negative. |                         |                       | The product has not been tested. The statement is derived from the properties of the single components. |

Reproduction toxicity

| Value  | Test species | Method of administration | Test method | Remarks                            |
|--|--------------|--------------------------|-------------|------------------------------------|
| NOAEL: > = 1500 mg/kg bw/day (Reproductive toxicity) | Rat.         |                          | OECD 422.   | test substance: Potassium sulfate. |



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| Value  | Test species | Method of administration | Test method | Remarks   |
|--|--------------|--------------------------|-------------|---|
| NOAEL: $\geq$ 1500 ppm<br>(Reproductive toxicity)              | Rat.         | Feed.                    | OECD 416.   | test substance:<br>Copper(II) sulfate<br>pentahydrate.  |
| No evidence for reproductive toxicity in experimental animals. |              |                          |             | The product has not been tested. The statement is derived from the properties of the single components. |

Specific target organ toxicity  
(single exposure) [mg/kg]      No data available.

Specific target organ toxicity  
(repeated exposure) [mg/kg]      No data available.

Aspiration hazard      Not applicable.

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish [mg/l]

| Value           | Exposure duration | Remarks   |
|-----------------|-------------------|---|
| LC50: 3550 mg/L | 96 h              | test substance: Potassium sulfate.                  |
| LC50: 0.6 mg/L  | 96 h              | test substance: Copper(II) sulfate<br>pentahydrate. |

Toxicity to daphnia [mg/l]

| Value            | Exposure duration | Remarks   |
|------------------|-------------------|---|
| EC50: 890 mg/L   | 48 h              | test substance: Potassium sulfate.                  |
| EC50: 0.024 mg/L | 48 h              | test substance: Copper(II) sulfate<br>pentahydrate. |

Toxicity to algae [mg/l]

| Value  | Exposure duration | Remarks                            |
|--|-------------------|------------------------------------|
| IC50: 2900 mg/L  | 72 h              | test substance: Potassium sulfate. |
| Data are not available for all ingredients of the product. |                   | The product has not been tested.   |

NOEC (fish) [mg/l]      No data available

NOEC (Daphnie) [mg/l]      No data available

NOEC (algae) [mg/l]

| Value  | Test species               | Exposure duration | Remarks   |
|--|----------------------------|-------------------|---|
| NOEC: 0.0057 mg/L  | Phaeodactylum tricornutum. | 72 h              | test substance: Copper(II)<br>sulfate pentahydrate. |
| Data are not available for all ingredients of the product. |                            |                   | The product has not been tested.                    |

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## 12.2 Persistence and degradability

Biodegradability The methods for determining the biological degradability are not applicable to inorganic substances.

## 12.3 Bioaccumulative potential

Bioaccumulation No indication of bioaccumulation potential.

## 12.4 Mobility in soil

Mobility No data available.

## 12.5 Results of PBT and vPvB assessment

Results of PBT characteristics determination This mixture contains no substance where the PBT-/vPvB criteria of REACH, annex XIII apply. Product/Substance is inorganic.

## SECTION 13: Disposal considerations




### 13.1 Waste treatment methods

Disposal considerations Dispose according to legislation. Do not allow uncontrolled discharge of product into the environment.

Waste Code The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Uncleaned empty packaging Packs that cannot be cleaned should be disposed of in the same manner as the contents. Consult the appropriate local waste disposal expert about waste disposal.

## SECTION 14: Transport information

|                          | Land transport ADR/RID   | Marine transport IMDG  | Air transport ICAO/IATA  |
|--------------------------|--|--|--|
| UN-No                    | 3077   | 3077   | 3077   |
| Class                    | 9  | 9  | 9  |
| Packaging group          | III  | III  | III  |
| Description of the goods | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Contains: Copper(II) sulfate pentahydrate) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Contains: Copper(II) sulfate pentahydrate) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Contains: Copper(II) sulfate pentahydrate) |
| Proper shipping name     | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains: copper sulphate pentahydrate)    | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains: copper sulphate pentahydrate)    | Environmentally hazardous substance, solid, n.o.s. (contains: copper sulphate pentahydrate)    |
| Labels                   | U, 9<br>    | U, 9<br>    | U, 9<br>  |
| Tunnel restriction code  | E  |  |  |
| Environmental hazards    | Dangerous for the environment  | Dangerous for the environment<br>Marine pollutant: yes   | Dangerous for the environment  |

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**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

Additional regulations                      Observe in addition any national regulations!

**15.2 Chemical safety assessment**

Safety assessment                      For the following substances of this mixture a chemical safety assessment has been carried out: Potassium sulfate, copper sulphate

**SECTION 16: Other information**

Relevant R-phrases                      R22: Harmful if swallowed.  
    R36/38: Irritating to eyes and skin.  
    R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Relevant H-phrases                      H302: Harmful if swallowed.  
    H315: Causes skin irritation.  
    H319: Causes serious eye irritation.  
    H400: Very toxic to aquatic life.  
    H410: Very toxic to aquatic life with long lasting effects.

Wording of the hazard classes                      Skin Irrit.: Skin irritation  
    Eye Irrit.: Serious eye irritation  
    Aquatic Acute: Hazardous to the aquatic environment  
    Aquatic Chronic: Hazardous to the aquatic environment  
    Acute Tox.: Acute toxicity

Key literature references and sources for data                      REACH dossier(s) according to EC 1907/2006.

Department issuing safety data sheet                      BÜCHI Labortechnik AG  
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