SAFETY DATA SHEET





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

1.1. Product identifier

Trade name or designation

of the mixture

MetalFil Classic Copper

Registration number

Synonyms None

05-March-2019 Issue date

Version number

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

Identified uses 3D printer filament Uses advised against None known. 1.3. Details of the supplier of the safety data sheet

Supplier

Formfutura BV Company name

Groenestraat 215, 6531 HH Nijmegen, The Netherlands **Address Telephone** +31 (0)85 743 4000 (Office hours Mo. - Fr. 09:00 - 17:00 CET)

Product Compliance Contact person

product.compliance@formfutura.com e-mail

1.4. Emergency telephone

number

+31 (0)30 274 8888, only for the doctor

National Poison Information Center Utrecht, The Netherlands

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Environmental hazards

Hazardous to the aquatic environment, acute Category 1

aquatic hazard

long-term aquatic hazard

Hazardous to the aquatic environment,

Category 3

H400 - Very toxic to aquatic life. H412 - Harmful to aquatic life with

long lasting effects.

Hazard summary Not classified for health hazards. However, occupational exposure to the mixture or substance(s)

may cause adverse health effects.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Under CLP Regulation (EC) No 1272/2008 and its amendments, labelling is not required for mixtures containing polymers or elastomers but the information appears in the Safety Data Sheet.

Not a PBT or vPvB substance or mixture. 2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

| Chemical name | % | CAS-No. / EC No. | REACH Registration No. | Index No. | Notes |
|-----------------------|------------------------|------------------------|-------------------------------|--------------|-------|
| Copper (encapsulated) | 70 - < 80 | 7440-50-8 231-159-6 | - | 029-019-01-X | |
| Classification: | Aquatic Acute 1;H400(N | ∕/=1), Aquatic Chroni | c 3;H412 | | |
| Polylactic acid | 10 - < 20 | 9051-89-2 | - | - | |

Classification:



Chemical name % CAS-No. / EC No. REACH Registration No. **Notes** Index No. barium sulfate 7727-43-7 3 - < 5231-784-4

Classification:

Other components below reportable 5 - < 10

List of abbreviations and symbols that may be used above

M: M-factor

Composition comments The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to

protect themselves.

4.1. Description of first aid measures

Not likely, due to the form of the product. If exposed to excessive levels of dusts or fumes, remove Inhalation

to fresh air and get medical attention if cough or other symptoms develop.

Skin contact If burned by contact with hot material, cool molten material adhering to skin as quickly as possible

with water, and see a physician for removal of adhering material and treatment of burn. Do not

peel polymer from the skin.

Not likely, due to the form of the product. If hot product contacts eye, flush with water for at least Eye contact

15 minutes and seek medical attention immediately.

Ingestion Not likely, due to the form of the product.

4.2. Most important symptoms

Exposure may cause temporary irritation, redness, or discomfort.

and effects, both acute and delayed

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing

media

Powder. Dry sand.

Unsuitable extinguishing

media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting

procedures

Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency

personnel

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

For emergency responders

Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the

SDS.

6.2. Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into

drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Prevent product from entering drains. Sweep up or vacuum up spillage and collect in suitable container for disposal.

For waste disposal, see section 13 of the SDS.

6.4. Reference to other

sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.



SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

| Austria. MAK List, OEL Ordinanc Components | Type | Value | Form | |
|---|--|--|---|--|
| Copper (encapsulated) CAS 7440-50-8) | MAK | 1 mg/m3 | Inhalable fraction. | |
| | | 0,1 mg/m3 | Fume and respirable dust. | |
| | STEL | 4 mg/m3 | Inhalable fraction. | |
| | | 0,4 mg/m3 | Fume and respirable dust. | |
| Belgium. Exposure Limit Values. Components | Туре | Value | Form | |
| parium sulfate (CAS 7727-43-7) | TWA | 10 mg/m3 | | |
| Copper (encapsulated) CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. | |
| , | | 0,2 mg/m3 | Fume. | |
| Bulgaria. OELs. Regulation No 13 Components | 3 on protection of workers aga Type | inst risks of exposure to chen Value | nical agents at work | |
| parium sulfate (CAS | TWA | 10 mg/m3 | | |
| ` | | Ç | | |
| 7727-43-7) Copper (encapsulated) (CAS 7440-50-8) | TWA | 0,1 mg/m3 | | |
| 7727-43-7) Copper (encapsulated) | TWA | 0,1 mg/m3 | nd 2, Narodne Novine, 13/0 Form | |
| 7727-43-7) Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance E. Components Darium sulfate (CAS | TWA xposure Limit Values in the Wo | 0,1 mg/m3 orkplace (ELVs), Annexes 1 ar | | |
| 2727-43-7) Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance E. Components Darium sulfate (CAS | TWA xposure Limit Values in the Wo | 0,1 mg/m3 orkplace (ELVs), Annexes 1 ar Value | Form | |
| 7727-43-7) Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance E | TWA xposure Limit Values in the Wo | 0,1 mg/m3 orkplace (ELVs), Annexes 1 ar Value 4 mg/m3 | Form Respirable dust. | |
| Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance E. Components Darium sulfate (CAS COPPER (encapsulated) | TWA xposure Limit Values in the Wo Type MAC | 0,1 mg/m3 orkplace (ELVs), Annexes 1 ar Value 4 mg/m3 10 mg/m3 | Form Respirable dust. Total dust. | |
| Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance Encomponents Dearium sulfate (CAS 7727-43-7) Copper (encapsulated) CAS 7440-50-8) Cyprus. OELs. Control of factory | TWA xposure Limit Values in the Wo Type MAC MAC STEL | 0,1 mg/m3 orkplace (ELVs), Annexes 1 ar | Form Respirable dust. Total dust. Dust and fume. Dust and fume. | |
| Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance E. Components Darium sulfate (CAS COPPER (encapsulated) | TWA xposure Limit Values in the Wo Type MAC MAC STEL atmosphere and dangerous so | 0,1 mg/m3 orkplace (ELVs), Annexes 1 ar Value 4 mg/m3 10 mg/m3 0,21 mg/m3 2 mg/m3 ubstances in factories regulat | Form Respirable dust. Total dust. Dust and fume. Dust and fume. ion, PI 311/73, as amended | |
| Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance Encomponents Darium sulfate (CAS 7727-43-7) Copper (encapsulated) CAS 7440-50-8) Cyprus. OELs. Control of factory Components Copper (encapsulated) CAS 7440-50-8) Czech Republic. OELs. Governments | TWA xposure Limit Values in the Work Type MAC MAC STEL atmosphere and dangerous ser Type TWA ent Decree 361 | 0,1 mg/m3 orkplace (ELVs), Annexes 1 ar Value 4 mg/m3 10 mg/m3 0,21 mg/m3 2 mg/m3 ubstances in factories regulat Value | Form Respirable dust. Total dust. Dust and fume. Dust and fume. ion, PI 311/73, as amended Form | |
| Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance Encomponents Dearium sulfate (CAS 7727-43-7) Copper (encapsulated) CAS 7440-50-8) Cyprus. OELs. Control of factory Components Copper (encapsulated) CAS 7440-50-8) Czech Republic. OELs. Governments Components Dearium sulfate (CAS | TWA xposure Limit Values in the Wo Type MAC MAC STEL atmosphere and dangerous so Type TWA | 0,1 mg/m3 prkplace (ELVs), Annexes 1 ar Value 4 mg/m3 10 mg/m3 0,21 mg/m3 2 mg/m3 ubstances in factories regulat Value 0,2 mg/m3 | Form Respirable dust. Total dust. Dust and fume. Dust and fume. ion, PI 311/73, as amended Form Fume. | |
| Copper (encapsulated) (CAS 7440-50-8) Croatia. Dangerous Substance Encomponents Dearium sulfate (CAS 7727-43-7) Copper (encapsulated) (CAS 7440-50-8) Cyprus. OELs. Control of factory Components Copper (encapsulated) | TWA xposure Limit Values in the Wo Type MAC MAC STEL atmosphere and dangerous so Type TWA ent Decree 361 Type | 0,1 mg/m3 orkplace (ELVs), Annexes 1 ar Value 4 mg/m3 10 mg/m3 0,21 mg/m3 2 mg/m3 ubstances in factories regulat Value 0,2 mg/m3 Value | Form Respirable dust. Total dust. Dust and fume. Dust and fume. ion, PI 311/73, as amended Form Fume. Form | |
| Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance Encomponents Dearium sulfate (CAS 7727-43-7) Copper (encapsulated) CAS 7440-50-8) Copper (encapsulated) Components Components Components Copper (encapsulated) Copper (encapsulated) | TWA xposure Limit Values in the Work Type MAC MAC STEL atmosphere and dangerous sur Type TWA ent Decree 361 Type TWA | 0,1 mg/m3 prkplace (ELVs), Annexes 1 ar Value 4 mg/m3 10 mg/m3 0,21 mg/m3 2 mg/m3 ubstances in factories regulat Value 0,2 mg/m3 Value 5 mg/m3 | Form Respirable dust. Total dust. Dust and fume. Dust and fume. ion, PI 311/73, as amended Form Fume. Form Dust. | |
| Copper (encapsulated) CAS 7440-50-8) Croatia. Dangerous Substance Ecomponents Darium sulfate (CAS 7727-43-7) Copper (encapsulated) CAS 7440-50-8) Cyprus. OELs. Control of factory Components Copper (encapsulated) CAS 7440-50-8) Czech Republic. OELs. Governme Components Darium sulfate (CAS 7727-43-7) Copper (encapsulated) | TWA xposure Limit Values in the Work Type MAC MAC STEL atmosphere and dangerous sur Type TWA ent Decree 361 Type TWA | 0,1 mg/m3 prkplace (ELVs), Annexes 1 ar Value 4 mg/m3 10 mg/m3 0,21 mg/m3 2 mg/m3 ubstances in factories regulat Value 0,2 mg/m3 Value 5 mg/m3 2 mg/m3 | Form Respirable dust. Total dust. Dust and fume. Dust and fume. ion, PI 311/73, as amended Form Fume. Form Dust. Dust. | |



| Denmark. Exposure Lim Components | Type | Value | Form |
|---|--|--------------------------------|------------------------------|
| Copper (encapsulated) (CAS 7440-50-8) | TLV | 1 mg/m3 | Dust. |
| , 67. 67. 1. 1. 66. 67 | | 0,1 mg/m3 | Fume. |
| <u>-</u> | ional Exposure Limits of Hazardous Substances. | (Annex of Regulation | on No. 293 of 18 Septembe |
| 2001) Components | Туре | Value | Form |
| barium sulfate (CAS 7727-43-7) | TWA | 5 mg/m3 | Respirable dust. |
| 7727 10 1) | | 10 mg/m3 | Total dust. |
| | | 1 mg/m3 | Dust. |
| Copper (encapsulated) (CAS 7440-50-8) | TWA | 1 mg/m3 | Total dust. |
| (OAO 1440-00-0) | | 0,2 mg/m3 | Respirable dust. |
| Finland. Workplace Exp | | | _ |
| Components | Туре | Value | Form |
| barium sulfate (CAS 7727-43-7) | TWA | 10 mg/m3 | Dust. |
| Copper (encapsulated) (CAS 7440-50-8) | TWA | 0,1 mg/m3 | Respirable dust and/or fume. |
| (0/10/1440/00/0) | | 0,02 mg/m3 | Respirable. |
| France. Threshold Limit Components | Values (VLEP) for Occupational Exposure to Che Type | emicals in France, II Value | NRS ED 984 Form |
| barium sulfate (CAS 7727-43-7) | VME | 5 mg/m3 | Respirable fraction. |
| Regulatory status: | Regulatory binding (VRC) | | |
| | | 10 mg/m3 | Inhalable fraction. |
| Regulatory status: | Regulatory binding (VRC) | | |
| Copper (encapsulated) (CAS 7440-50-8) | VLE | 2 mg/m3 | Dust. |
| Regulatory status: | Indicative limit (VL) | | |
| | VME | 1 mg/m3 | Dust. |
| Regulatory status: | Indicative limit (VL) | 0,2 mg/m3 | Fume. |
| Regulatory status: | Indicative limit (VL) | o,g,c | |
| | (advisory OELs). Commission for the Investigati | on of Health Hazard | s of Chemical Compound |
| in the Work Area (DFG) Components | Туре | Value | Form |
| barium sulfate (CAS | TWA | 4 mg/m3 | Inhalable fraction. |
| 7727-43-7) | | 0,3 mg/m3 | Respirable fraction. |
| Copper (encapsulated) (CAS 7440-50-8) | TWA | 0,01 mg/m3 | Respirable fraction. |
| • | nit Values in the Ambient Air at the Workplace | | |
| Components | Туре | Value | Form |
| barium sulfate (CAS 7727-43-7) | AGW | 10 mg/m3 | Inhalable fraction. |
| | | 1,25 mg/m3 | Respirable fraction. |
| Greece. OELs (Decree N | o. 90/1999, as amended) | Value | Form |
| = | Туре | Value | FUIIII |
| Components | | | |
| Components Copper (encapsulated) | STEL | 2 mg/m3 | Dust. |
| Components Copper (encapsulated) (CAS 7440-50-8) | STEL | 2 mg/m3 1 mg/m3 | Dust. |



| | Chemical Safety of Workplaces Type | Value | Form |
|--|---|---|---|
| parium sulfate (CAS 7727-43-7) | TWA | 6 mg/m3 | Respirable dust. |
| , | | 10 mg/m3 | Total inhalable dust |
| Copper (encapsulated) CAS 7440-50-8) | STEL | 4 mg/m3 | |
| (CAS 1440-50-6) | | 0,4 mg/m3 | Smoke. |
| | TWA | 1 mg/m3 | |
| | | 0,1 mg/m3 | Smoke. |
| celand. OELs. Regulation 154/19 | 999 on occupational exposure limits | | |
| Components | Туре | Value | Form |
| Copper (encapsulated) | TWA | 1 mg/m3 | Total dust. |
| (CAS 7440-50-8) | | 0,1 mg/m3 | Respirable dust. |
| reland. Occupational Exposure | Limits | | · |
| Components | Туре | Value | Form |
| parium sulfate (CAS 7727-43-7) | TWA | 2 mg/m3 | Respirable dust. |
| Copper (encapsulated) | STEL | 2 mg/m3 | Dust and mist. |
| CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| | | 0,2 mg/m3 | Fume. |
| taly. Occupational Exposure Lin | nite | , 0 | |
| Components | Туре | Value | Form |
| parium sulfate (CAS 7727-43-7) | TWA | 5 mg/m3 | Inhalable fraction. |
| Copper (encapsulated) (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| (and 1110 00 0) | | 0,2 mg/m3 | Fume. |
| atvia, OFI's Occupational expo | osure limit values of chemical substand | | |
| | | Value | Form |
| Components | Туре | | |
| Components parium sulfate (CAS | TWA | 2 mg/m3 | |
| Components parium sulfate (CAS | | 2 mg/m3 2 mg/m3 | Dust. |
| Components Darium sulfate (CAS 7727-43-7) Copper (encapsulated) | | - | Dust. |
| Components Darium sulfate (CAS 7727-43-7) Copper (encapsulated) | TWA | 2 mg/m3 | Dust. |
| Components parium sulfate (CAS 7727-43-7) Copper (encapsulated) CAS 7440-50-8) Lithuania. OELs. Limit Values for | TWA STEL TWA r Chemical Substances, General Requi | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements | |
| Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) 1727-440-50-8) Lithuania. OELs. Limit Values for Components | TWA STEL TWA r Chemical Substances, General Requi | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value | Form |
| Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components Dearium sulfate (CAS | TWA STEL TWA r Chemical Substances, General Requi | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements | Form |
| Components Darium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components Darium sulfate (CAS | TWA STEL TWA r Chemical Substances, General Requi | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value | Form |
| Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components Dearium sulfate (CAS | TWA STEL TWA r Chemical Substances, General Requi | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value 5 mg/m3 | Form Respirable fraction. |
| Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) | TWA STEL TWA r Chemical Substances, General Requi | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value 5 mg/m3 10 mg/m3 | Form Respirable fraction. Inhalable fraction. |
| Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) | TWA STEL TWA r Chemical Substances, General Requi Type TWA | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value 5 mg/m3 10 mg/m3 1 mg/m3 | Form Respirable fraction. Inhalable fraction. Dust. Inhalable fraction. |
| Components Darium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components Darium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) | TWA STEL TWA r Chemical Substances, General Requi Type TWA | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value 5 mg/m3 10 mg/m3 1 mg/m3 | Form Respirable fraction. Inhalable fraction. Dust. |
| Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Netherlands. OELs (binding) | TWA STEL TWA r Chemical Substances, General Requi Type TWA | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value 5 mg/m3 10 mg/m3 1 mg/m3 | Form Respirable fraction. Inhalable fraction. Dust. Inhalable fraction. |
| components barium sulfate (CAS 7727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components barium sulfate (CAS 7727-43-7) Copper (encapsulated) (CAS 7440-50-8) Netherlands. OELs (binding) Components Copper (encapsulated) | TWA STEL TWA r Chemical Substances, General Requi Type TWA TWA | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value 5 mg/m3 10 mg/m3 1 mg/m3 1 mg/m3 | Form Respirable fraction. Inhalable fraction. Dust. Inhalable fraction. Respirable fraction. |
| Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components Dearium sulfate (CAS 1727-43-7) Copper (encapsulated) (CAS 7440-50-8) Netherlands. OELs (binding) Components Copper (encapsulated) (CAS 7440-50-8) | TWA STEL TWA r Chemical Substances, General Requi Type TWA TWA | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value 5 mg/m3 10 mg/m3 1 mg/m3 1 mg/m3 Value Value | Form Respirable fraction. Inhalable fraction. Dust. Inhalable fraction. Respirable fraction. Form |
| Components barium sulfate (CAS 7727-43-7) Copper (encapsulated) (CAS 7440-50-8) Lithuania. OELs. Limit Values for Components barium sulfate (CAS 7727-43-7) Copper (encapsulated) (CAS 7440-50-8) Netherlands. OELs (binding) Components Copper (encapsulated) (CAS 7440-50-8) | TWA STEL TWA r Chemical Substances, General Requirype TWA TWA TWA | 2 mg/m3 1 mg/m3 0,5 mg/m3 irements Value 5 mg/m3 10 mg/m3 1 mg/m3 1 mg/m3 Value Value | Form Respirable fraction. Inhalable fraction. Dust. Inhalable fraction. Respirable fraction. Form |



| Norway. Administrative Norms for Components | or Contaminants in the Workpla Type | ce Value | Form |
|--|---|---|----------------------------|
| · | | 10 mg/m3 | Total dust. |
| Copper (encapsulated) | TLV | 1 mg/m3 | Dust. |
| (CAS 7440-50-8) | | 0,1 mg/m3 | Fume. |
| Ordinance of the Minister of Lab | | 2014 on the maximum perm | ssible concentrations and |
| Components | Type | Value | |
| Copper (encapsulated) (CAS 7440-50-8) | TWA | 0,2 mg/m3 | |
| Portugal. VLEs. Norm on occupa Components | ational exposure to chemical ag Type | ents (NP 1796) Value | Form |
| parium sulfate (CAS 7727-43-7) | TWA | 5 mg/m3 | Inhalable fraction. |
| Copper (encapsulated) (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| | | 0,2 mg/m3 | Fume. |
| Romania. OELs. Protection of wo | orkers from exposure to chemic Type | cal agents at the workplace Value | Form |
| Copper (encapsulated) (CAS 7440-50-8) | STEL | 1,5 mg/m3 | Dust. |
| | | 0,2 mg/m3 | Fume. |
| | TWA | 0,5 mg/m3 | Dust. |
| Slovakia. OELs. Regulation No. 3 Components | 300/2007 concerning protection Type | of health in work with chemic | cal agents Form |
| barium sulfate (CAS 7727-43-7) | TWA | 4 mg/m3 | Inhalable fraction. |
| | | 1,5 mg/m3 | Respirable fraction. |
| Copper (encapsulated) (CAS 7440-50-8) | TWA | 1 mg/m3 | Inhalable fraction. |
| | | 0,2 mg/m3 | Respirable fume. |
| Slovenia. OELs. Regulations cor (Official Gazette of the Republic | | against risks due to exposure | to chemicals while working |
| Components | Type | Value | Form |
| Copper (encapsulated) | TWA | 1 mg/m3 | Inhalable fraction. |
| (CAS 7440-50-8) | | 0,1 mg/m3 | Respirable fume. |
| Spain. Occupational Exposure L | imite | 0,1 mg/mo | reophable fame. |
| Components | Туре | Value | Form |
| barium sulfate (CAS 7727-43-7) | TWA | 10 mg/m3 | |
| Copper (encapsulated) (CAS 7440-50-8) | TWA | 1 mg/m3 | Dust and mist. |
| (OAO 1 440-30-0) | | 0,2 mg/m3 | Fume. |
| Sweden. OELs. Work Environme Components | ent Authority (AV), Occupationa Type | l Exposure Limit Values (AFS Value | 2015:7) Form |
| barium sulfate (CAS | TWA | 5 mg/m3 | Inhalable dust. |
| 7727-43-7) | | 2,5 mg/m3 | Respirable dust. |
| Copper (encapsulated) | TWA | 2,5 mg/m3 | Respirable dust. |
| (CAS 7440-50-8) | | -,- · · · · g · · · · g | , |
| Switzerland. SUVA Grenzwerte a Components | am Arbeitsplatz Type | Value | Form |
| barium sulfate (CAS | TWA | 3 mg/m3 | Respirable dust. |
| 7727-43-7) | | | |



| Switzerland. SUVA Grenzwerte a Components | am Arbeitsplatz Type | Value | Form |
|---|-------------------------|-----------|----------------------------|
| | | 10 mg/m3 | Inhalable dust. |
| Copper (encapsulated) (CAS 7440-50-8) | STEL | 0,2 mg/m3 | Inhalable fraction. |
| , | TWA | 0,1 mg/m3 | Inhalable fraction. |
| UK. EH40 Workplace Exposure Components | Limits (WELs) Type | Value | Form |
| barium sulfate (CAS 7727-43-7) | TWA | 4 mg/m3 | Respirable dust. |
| | | 10 mg/m3 | Inhalable dust. |
| Copper (encapsulated) (CAS 7440-50-8) | STEL | 2 mg/m3 | Inhalable dusts and mists. |
| | TWA | 1 mg/m3 | Inhalable dusts and mists. |
| | | 0,2 mg/m3 | Fume. |

Biological limit values

No biological exposure limits noted for the ingredient(s).

Recommended monitoring

procedures

Follow standard monitoring procedures.

Derived no effect levels

(DNELs)

Not available.

Predicted no effect concentrations (PNECs)

Not available.

8.2. Exposure controls

Appropriate engineering

controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been

established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information Personal protection equipment should be chosen according to the CEN standards and in

discussion with the supplier of the personal protective equipment.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

- Hand protection Wear appropriate chemical resistant gloves.

- Other Wear suitable protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Always observe good personal hygiene measures, such as washing after handling the material

and before eating, drinking, and/or smoking. Routinely wash work clothing and protective

equipment to remove contaminants.

Environmental exposure

controls

Inform appropriate managerial or supervisory personnel of all environmental releases. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state Solid.
Form filament
Colour Copper
Odour Metallic.
Odour threshold Not available.
PH Not available.
Melting point/freezing point Not available.

Initial boiling point and boiling

150 - 170 °C (302 - 338 °F)

range



Not available. Flash point **Evaporation rate** Not available. Flammability (solid, gas) Not available. Upper/lower flammability or explosive limits

Flammability limit - lower

(%)

Not available.

Not available.

Flammability limit - upper

(%)

Not available.

Vapour pressure Not available. Vapour density > 1 mg/l (25°C) Relative density

Solubility(ies)

Insoluble Solubility (water) Partition coefficient Not available.

(n-octanol/water)

Not available. **Auto-ignition temperature Decomposition temperature** Not available. Not available. **Viscosity** Not explosive. **Explosive properties** Oxidising properties Not oxidising.

9.2. Other information No relevant additional information available.

SECTION 10: Stability and reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport. 10.1. Reactivity

10.2. Chemical stability Material is stable under normal conditions.

10.3. Possibility of hazardous

reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with

> incompatible materials. Strong oxidising agents.

10.5. Incompatible materials

10.6. Hazardous

No hazardous decomposition products are known.

decomposition products

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Prolonged inhalation may be harmful. Inhalation

Based on available data, the classification criteria are not met. Skin contact Based on available data, the classification criteria are not met. Eye contact

May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of Ingestion

occupational exposure.

Symptoms Exposure may cause temporary irritation, redness, or discomfort.

11.1. Information on toxicological effects

Acute toxicity Not known.

Skin corrosion/irritation Based on available data, the classification criteria are not met. Serious eye damage/eye Based on available data, the classification criteria are not met.

irritation

Respiratory sensitisation Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met. Skin sensitisation Based on available data, the classification criteria are not met. Germ cell mutagenicity Based on available data, the classification criteria are not met. Carcinogenicity

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

Based on available data, the classification criteria are not met. Reproductive toxicity Based on available data, the classification criteria are not met. Specific target organ toxicity -

single exposure



Specific target organ toxicity -

repeated exposure

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

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

Aspiration hazard

Mixture versus substance

information

No information available.

Other information

Not available.

SECTION 12: Ecological information

12.1. Toxicity Components of this product are hazardous to aquatic life.

Components **Species Test Results**

Copper (encapsulated) (CAS 7440-50-8)

Aquatic

Crustacea EC50 Water flea (Daphnia magna) 0,0318 mg/l, 48 hours LC50 Fish Chinook salmon (Oncorhynchus 0,02 mg/l, 96 hours

tshawytscha)

12.2. Persistence and

degradability

No data is available on the degradability of any ingredients in the mixture.

12.3. Bioaccumulative potential No data available. **Partition coefficient** Not available.

n-octanol/water (log Kow)

Not available. **Bioconcentration factor (BCF)** 12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB

assessment

Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation

potential, endocrine disruption, global warming potential) are expected from this component.

12.7. Additional information

Estonia Dangerous substances in groundwater Data

Copper (encapsulated) (CAS 7440-50-8) Copper (Cu) 1000 ug/l

Copper (Cu) 15 ug/l

Estonia Dangerous substances in soil Data

Copper (encapsulated) (CAS 7440-50-8) Copper (Cu) 100 mg/kg

> Copper (Cu) 150 mg/kg Copper (Cu) 500 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

EU waste code The Waste code should be assigned in discussion between the user, the producer and the waste

disposal company.

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow Disposal methods/information

this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches

with chemical or used container. Dispose of contents/container in accordance with

local/regional/national/international regulations.

Special precautions Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. - 14.6.: Not regulated as dangerous goods.

RID

14.1. - 14.6.: Not regulated as dangerous goods.

ADN

14.1. - 14.6.: Not regulated as dangerous goods.

IATA

14.1. - 14.6.: Not regulated as dangerous goods.

IMDG

14.1. - 14.6.: Not regulated as dangerous goods.



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

Not applicable.

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP

Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation

(EC) No 1907/2006, as amended.

National regulations Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as

amended.

15.2. Chemical safety

assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations Not available.

References Not available.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under

Sections 2 to 15 H400 Very toxic to aquatic life.

H412 Harmful to aquatic life with long lasting effects.

Revision information None.

Training information Follow training instructions when handling this material.

Disclaimer This safety data sheet (SDS) is issued based on the latest reference, data etc currently available.

The information in this SDS has been carefully assessed, but no guarantee is given for its accuracy. We cannot anticipate all conditions under which this product may be used. It is the

user's responsibility to take appropriate safety measures for handling.

