



PRODUCT INFORMATION SHEET

MATERION

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

1.1. Product identifier

| | | |
|---|---|--|
| Trade name or designation of the mixture | Copper Gallium with Sodium Selenite Targets | |
| Registration number | - | |
| Document number | G14 | |
| Synonyms | None. | |
| Issue date | 01-February-2021 | |
| Version number | 01 | |

1.3. Details of the supplier of the product information sheet

Supplier

| | | |
|-----------------------|--|-------------|
| Company name | Materion Advanced Materials Germany GmbH | |
| Address | Borsigstrasse 10 63755 Alzenau DE | |
| Division | | |
| Telephone | 49.60.23.91.82.0 | H. Schmiing |
| e-mail | Materion.Germany@materion.com | |
| Contact person | Hermann Schmiing | |

| | | |
|--|------------------|-------------|
| 1.4. Emergency telephone number | 49.60.23.91.82.0 | H. Schmiing |
|--|------------------|-------------|

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

| | | |
|-----------------------------|--|--|
| Identified uses | Manufacture of computer, electronic and optical products, electrical equipment Scientific research and development Other: Manufacture of medical and defense equipment | |
| Uses advised against | Professional uses: Public domain (administration, education, entertainment, services, craftsmen) Consumer uses: Private households (= general public = consumers) | |

1.3. Details of the supplier of the safety data sheet

Supplier

| | | |
|-----------------------|--|-------------|
| Company name | Materion Advanced Materials Germany GmbH | |
| Address | Borsigstrasse 10 63755 Alzenau DE | |
| Division | | |
| Telephone | 49.60.23.91.82.0 | H. Schmiing |
| e-mail | Materion.Germany@materion.com | |
| Contact person | Hermann Schmiing | |

| | | |
|--|------------------|-------------|
| 1.4. Emergency telephone number | 49.60.23.91.82.0 | H. Schmiing |
|--|------------------|-------------|

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance 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

Physical hazards

| | | |
|---------------------|------------|------------------------------------|
| Corrosive to metals | Category 1 | H290 - May be corrosive to metals. |
|---------------------|------------|------------------------------------|

Health hazards

| | | |
|-----------------------------------|------------|---|
| Acute toxicity, oral | Category 2 | H300 - Fatal if swallowed. |
| Acute toxicity, inhalation | Category 3 | H331 - Toxic if inhaled. |
| Serious eye damage/eye irritation | Category 1 | H318 - Causes serious eye damage. |
| Skin sensitisation | Category 1 | H317 - May cause an allergic skin reaction. |

Environmental hazards

Hazardous to the aquatic environment,
long-term aquatic hazard

Category 2

H411 - Toxic to aquatic life with
long lasting effects.

Hazard summary

Toxic if inhaled. Toxic if swallowed. Causes serious eye irritation. May cause an allergic skin reaction. Occupational exposure to the substance or mixture may cause adverse health effects.

2.2. Label elements

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

Contains:

COPPER FLAKES (COATED WITH ALIPHATIC ACID), Gallium, Sodium Selenite (Na₂SeO₃)

Hazard pictograms



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.
H300 Fatal if swallowed.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H331 Toxic if inhaled.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P284 Wear respiratory protection.

Response

P301 + P330 + P310 IF SWALLOWED: Rinse mouth. Immediately obtain medical assistance.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately get medical assistance.
P305 + P351 + P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information

For further information, please contact the Product Stewardship Department at +1.216.383.4019.

2.3. Other hazards

Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

| Chemical name | % | CAS-No. / EC No. | REACH Registration No. | Index No. | Notes |
|--|---------|------------------------|------------------------|-----------|-------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) | 75 - 90 | 7440-50-8 231-159-6 | 01-2119480154-42-0080 | - | |
| Classification: - | | | | | |
| Gallium | 10 - 20 | 7440-55-3 231-163-8 | - | - | |
| Classification: Skin Corr. 1C;H314, Eye Dam. 1;H318 | | | | | |

| Chemical name | % | CAS-No. / EC No. | REACH Registration No. | Index No. | Notes |
|--|--------|-------------------------|------------------------|--------------|-------|
| Sodium Selenite (Na ₂ SeO ₃) | 5 - 10 | 10102-18-8 233-267-9 | - | 034-003-00-3 | |
| Classification: Acute Tox. 2;H300, Skin Sens. 1;H317, Acute Tox. 3;H331, Aquatic Chronic 1;H410 | | | | | |

SECTION 4: First aid measures

| | |
|--|--|
| General information | If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |
| 4.1. Description of first aid measures | |
| Inhalation | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist. |
| Skin contact | Wash off with soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse. |
| Eye contact | Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists. |
| Ingestion | Rinse mouth. If swallowed, seek medical advice immediately and show this container or label. |
| 4.2. Most important symptoms and effects, both acute and delayed | Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. May cause an allergic skin reaction. Dermatitis. Rash. |
| 4.3. Indication of any immediate medical attention and special treatment needed | Provide general supportive measures and treat symptomatically. |

SECTION 5: Firefighting measures

| | |
|---|---|
| General fire hazards | No unusual fire or explosion hazards noted. |
| 5.1. Extinguishing media | |
| Suitable extinguishing media | Water spray. Foam. Powder. Dry sand. Carbon dioxide (CO ₂). |
| 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 firefighting procedures | Use water spray to cool unopened containers. |
| 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. Ensure adequate ventilation. For personal protection, see section 8 of the PIS. |
| For emergency responders | Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the PIS. |
| 6.2. Environmental precautions | Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. |
| 6.3. Methods and material for containment and cleaning up | Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination. |
| 6.4. Reference to other sections | Not available. |

SECTION 7: Handling and storage

| | |
|---|--|
| 7.1. Precautions for safe handling | Minimise dust generation and accumulation. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices. |
|---|--|

7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store in a well-ventilated place.

7.3. Specific end use(s)

Not applicable.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Occupational exposure limits****Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001**

| Components | Type | Value | Form |
|--|------|-----------------------|---------------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | MAK | 1 mg/m ³ | Inhalable fraction. |
| | STEL | 0,1 mg/m ³ | Fume and respirable dust. |
| | | 4 mg/m ³ | Inhalable fraction. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | MAK | 0,4 mg/m ³ | Fume and respirable dust. |
| | STEL | 0,1 mg/m ³ | Inhalable fraction. |
| | | 0,3 mg/m ³ | Inhalable fraction. |

Belgium. Exposure Limit Values

| Components | Type | Value | Form |
|--|------|-----------------------|----------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0,2 mg/m ³ | Fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,2 mg/m ³ | |

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

| Components | Type | Value |
|--|------|-----------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 0,1 mg/m ³ |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,2 mg/m ³ |

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

| Components | Type | Value | Form |
|--|------|-----------------------|----------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | MAC | 1 mg/m ³ | |
| | STEL | 0,2 mg/m ³ | Dust and fume. |
| | | 2 mg/m ³ | Dust and fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | MAC | 2 mg/m ³ | |
| | | 0,1 mg/m ³ | |

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

| Components | Type | Value | Form |
|--|------|-----------------------|-------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 0,2 mg/m ³ | Fume. |
| | | | |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,2 mg/m ³ | |

Czech Republic. OELs. Government Decree 361

| Components | Type | Value | Form |
|--|---------|---------------------|-------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | Ceiling | 2 mg/m ³ | Dust. |

Czech Republic. OELs. Government Decree 361

| Components | Type | Value | Form |
|---|---------|-----------------------|-------|
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | | 0,2 mg/m ³ | Fume. |
| | TWA | 1 mg/m ³ | Dust. |
| | | 0,1 mg/m ³ | Fume. |
| | Ceiling | 0,2 mg/m ³ | |
| | TWA | 0,1 mg/m ³ | |

Denmark. Exposure Limit Values

| Components | Type | Value | Form |
|---|------|-----------------------|-------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TLV | 1 mg/m ³ | Dust. |
| | | 0,1 mg/m ³ | Fume. |

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

| Components | Type | Value | Form |
|---|------|-----------------------|-------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 1 mg/m ³ | Total dust. |
| | | 0,2 mg/m ³ | Fine dust. |

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

| Components | Type | Value |
|---|------|-----------------------|
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,1 mg/m ³ |

Finland. Workplace Exposure Limits

| Components | Type | Value | Form |
|---|------|------------------------|------------------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 0,1 mg/m ³ | Respirable dust and/or fume. |
| | | 0,02 mg/m ³ | Respirable. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | STEL | 0,3 mg/m ³ | |
| | TWA | 0,1 mg/m ³ | |

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

| Components | Type | Value | Form | |
|---|---|---------------------|-----------------------|-------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | VLE | 2 mg/m ³ | Dust. | |
| | Regulatory status: Indicative limit (VL) | VME | 1 mg/m ³ | Dust. |
| | Regulatory status: Indicative limit (VL) | | 0,2 mg/m ³ | Fume. |
| Regulatory status: Indicative limit (VL) | | | | |

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

| Components | Type | Value | Form |
|---|------|------------------------|----------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 0,01 mg/m ³ | Respirable fraction. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,02 mg/m ³ | Inhalable fraction. |

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace Components

| Components | Type | Value | Form |
|---|------|------------------------|---------------------|
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | AGW | 0,05 mg/m ³ | Inhalable fraction. |

Greece. OELs (Decree No. 90/1999, as amended) Components

| Components | Type | Value | Form |
|---|------|-----------------------|-------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | STEL | 2 mg/m ³ | Dust. |
| | TWA | 1 mg/m ³ | Dust. |
| | | 0,2 mg/m ³ | Fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,2 mg/m ³ | |

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces Components

| Components | Type | Value | Form |
|---|------|-----------------------|--------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | STEL | 4 mg/m ³ | |
| | TWA | 0,4 mg/m ³ | Smoke. |
| | | 1 mg/m ³ | |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | STEL | 0,1 mg/m ³ | Smoke. |
| | TWA | 0,4 mg/m ³ | |
| | TWA | 0,1 mg/m ³ | |

Iceland. OELs. Regulation 154/1999 on occupational exposure limits Components

| Components | Type | Value | Form |
|---|------|-----------------------|------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 1 mg/m ³ | Total dust. |
| | | 0,1 mg/m ³ | Respirable dust. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,1 mg/m ³ | |

Ireland. Occupational Exposure Limits Components

| Components | Type | Value | Form |
|---|------|-----------------------|----------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0,2 mg/m ³ | Fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,1 mg/m ³ | |

Italy. Occupational Exposure Limits Components

| Components | Type | Value | Form |
|---|------|-----------------------|----------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0,2 mg/m ³ | Fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,2 mg/m ³ | |

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment Components

| Components | Type | Value | Form |
|---|------|-----------------------|------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | STEL | 1 mg/m ³ | |
| | TWA | 0,5 mg/m ³ | |

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

| Components | Type | Value | Form |
|---|------|-----------------------|----------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 1 mg/m ³ | Inhalable fraction. |
| | | 0,2 mg/m ³ | Respirable fraction. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,1 mg/m ³ | |

Netherlands. OELs (binding)

| Components | Type | Value | Form |
|---|------|-----------------------|---------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 0,1 mg/m ³ | Inhalable fraction. |

Norway. Administrative Norms for Contaminants in the Workplace

| Components | Type | Value | Form |
|---|------|------------------------|-------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TLV | 1 mg/m ³ | Dust. |
| | | 0,1 mg/m ³ | Fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TLV | 0,05 mg/m ³ | |

Poland. Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817

| Components | Type | Value | Form |
|---|------|-----------------------|------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 0,2 mg/m ³ | |
| | | 0,3 mg/m ³ | |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | STEL | 0,3 mg/m ³ | |
| | TWA | 0,1 mg/m ³ | |

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

| Components | Type | Value | Form |
|---|------|-----------------------|----------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0,2 mg/m ³ | Fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,2 mg/m ³ | |

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

| Components | Type | Value | Form |
|---|------|-----------------------|-------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | STEL | 1,5 mg/m ³ | Dust. |
| | | 0,2 mg/m ³ | Fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,5 mg/m ³ | Dust. |
| | | 0,2 mg/m ³ | |
| | TWA | 0,1 mg/m ³ | |

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

| Components | Type | Value | Form |
|---|------|-----------------------|---------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 1 mg/m ³ | Inhalable fraction. |
| | | 0,2 mg/m ³ | Respirable fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,1 mg/m ³ | |

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

| Components | Type | Value | Form |
|---|------|-----------------------|---------------------|
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,1 mg/m ³ | Inhalable fraction. |

Spain. Occupational Exposure Limits

| Components | Type | Value | Form |
|---|------|-----------------------|----------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 0,1 mg/m ³ | Respirable fraction. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,1 mg/m ³ | |

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

| Components | Type | Value | Form |
|---|------|------------------------|------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | TWA | 0,01 mg/m ³ | Respirable dust. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,1 mg/m ³ | Total dust. |

Switzerland. SUVA Grenzwerte am Arbeitsplatz

| Components | Type | Value | Form |
|---|------|------------------------|---------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | STEL | 0,2 mg/m ³ | Inhalable fraction. |
| | TWA | 0,1 mg/m ³ | Inhalable fraction. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | STEL | 0,16 mg/m ³ | Inhalable dust. |
| | TWA | 0,02 mg/m ³ | Inhalable dust. |

UK. EH40 Workplace Exposure Limits (WELs)

| Components | Type | Value | Form |
|---|------|-----------------------|----------------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | STEL | 2 mg/m ³ | Inhalable dusts and mists. |
| | TWA | 1 mg/m ³ | Inhalable dusts and mists. |
| | | 0,2 mg/m ³ | Fume. |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | TWA | 0,1 mg/m ³ | |

Biological limit values

Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices

| Components | Value | Determinant | Specimen | Sampling Time |
|---|----------------|-------------|---------------------|---------------|
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | 0,075 mg/g | Selenium | Creatinine in urine | * |
| | 0,11 µmol/mmol | Selenium | Creatinine in urine | * |

* - For sampling details, please see the source document.

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

| Components | Value | Determinant | Specimen | Sampling Time |
|---|----------|-------------|----------|---------------|
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | 150 µg/l | Selen | Serum | * |

* - For sampling details, please see the source document.

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 (typically 10 air changes per hour) 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. Provide eyewash station.

Individual protection measures, such as personal protective equipment

General information

Use personal protective equipment as required. 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 gloves to prevent metal cuts and skin abrasions during handling.

- 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

Keep away from food and drink. 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. Contaminated work clothing should not be allowed out of the workplace.

Environmental exposure controls

Avoid release to the aquatic environment. Inform appropriate managerial or supervisory personnel of all environmental releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state

Solid.

Form

Solid.

Colour

Brass.

Odour

None.

Odour threshold

Not applicable.

pH

Not applicable.

Melting point/freezing point

Undetermined. / Not applicable.

Initial boiling point and boiling range

Not applicable.

Flash point

Not applicable.

Evaporation rate

Not applicable.

Flammability (solid, gas)

None known.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not applicable.

Flammability limit - lower (%) temperature Not applicable.

Flammability limit - upper (%) Not applicable.

Flammability limit - upper (%) temperature Not applicable.

Explosive limit - lower (%) Not applicable.

Explosive limit - lower (%) temperature Not applicable.

Explosive limit - upper (%) Not applicable.

Explosive limit - upper (%) temperature Not applicable.

Vapour pressure

Not applicable.

Vapour density

Not applicable.

Relative density

Not applicable.

| | |
|--|--|
| Solubility(ies) | |
| Solubility (water) | Non-metallic component can partially dissolve. |
| Partition coefficient (n-octanol/water) | Not applicable. |
| Auto-ignition temperature | Not applicable. |
| Decomposition temperature | Not applicable. |
| Viscosity | Not applicable. |
| Explosive properties | Not available. |
| Oxidising properties | Not oxidising. |

9.2. Other information

| | |
|------------------------|----------------------------------|
| Density | 7,96 g/cm ³ estimated |
| Explosive limit | Not applicable. |
| Explosivity | Not applicable. |

SECTION 10: Stability and reactivity

| | |
|---|---|
| 10.1. Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| 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 | Contact with incompatible materials. |
| 10.5. Incompatible materials | Strong oxidising agents. |
| 10.6. Hazardous decomposition products | No hazardous decomposition products are known. |

SECTION 11: Toxicological information

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

Information on likely routes of exposure

| | |
|---------------------|--------------------------------------|
| Inhalation | Toxic if inhaled. |
| Skin contact | May cause an allergic skin reaction. |
| Eye contact | Causes serious eye irritation. |
| Ingestion | Fatal if swallowed. |

| | |
|-----------------|--|
| Symptoms | Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. May cause an allergic skin reaction. Dermatitis. Rash. |
|-----------------|--|

11.1. Information on toxicological effects

| | |
|--|---|
| Acute toxicity | Fatal if swallowed. Toxic if inhaled. |
| Skin corrosion/irritation | Due to partial or complete lack of data the classification is not possible. |
| Serious eye damage/eye irritation | Causes serious eye irritation. |
| Respiratory sensitisation | Due to partial or complete lack of data the classification is not possible. |
| Skin sensitisation | May cause an allergic skin reaction. |
| Germ cell mutagenicity | Due to partial or complete lack of data the classification is not possible. |
| Carcinogenicity | Due to partial or complete lack of data the classification is not possible. |

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

Not listed.

IARC Monographs. Overall Evaluation of Carcinogenicity

Sodium Selenite (Na₂SeO₃) (CAS 10102-18-8) 3 Not classifiable as to carcinogenicity to humans.

| | |
|---|---|
| Reproductive toxicity | Due to partial or complete lack of data the classification is not possible. |
| Specific target organ toxicity - single exposure | May cause respiratory irritation. |
| Specific target organ toxicity - repeated exposure | Not classified. |
| Aspiration hazard | Due to partial or complete lack of data the classification is not possible. |
| Mixture versus substance information | No information available. |

Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity Based on available data, the classification criteria are not met for hazardous to the aquatic environment, acute hazard.

| Product | Species | Test Results | |
|---|---------|--------------|-----------------------------------|
| Copper Gallium with Sodium Selenite Targets | | | |
| Aquatic | | | |
| <i>Acute</i> | | | |
| Crustacea | EC50 | Daphnia | 240,2444 mg/l, 48 hours estimated |
| Fish | LC50 | Fish | 0,036 mg/l, 96 hours estimated |

| Components | Species | Test Results | |
|--|---------|---|--------------------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | | | |
| Aquatic | | | |
| <i>Acute</i> | | | |
| Crustacea | EC50 | Blue crab (<i>Callinectes sapidus</i>) | 0,0031 mg/l |
| Fish | LC50 | Fathead minnow (<i>Pimephales promelas</i>) | 0,0219 - 0,0446 mg/l, 96 hours |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | | | |
| Aquatic | | | |
| <i>Acute</i> | | | |
| Crustacea | EC50 | Water flea (<i>Daphnia magna</i>) | 1,1 mg/l, 48 hours |
| Fish | LC50 | Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>) | 1,8 mg/l, 96 hours |

* Estimates for product may be based on additional component data not shown.

12.2. Persistence and degradability

12.3. Bioaccumulative potential No data available.

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

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 soil Data

| | |
|--|------------------------|
| COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8) | Copper (Cu) 100 mg/kg |
| | Copper (Cu) 150 mg/kg |
| | Copper (Cu) 500 mg/kg |
| Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8) | Selenium (Se) 1 mg/kg |
| | Selenium (Se) 20 mg/kg |
| | Selenium (Se) 5 mg/kg |

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. 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.

Disposal methods/information

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow 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. UN number UN2630
- 14.2. UN proper shipping name Selenates or Selenites
- 14.3. Transport hazard class(es)
 - Class 6.1(PGI, II)
 - Subsidiary risk -
 - Label(s) 6.1
 - Hazard No. (ADR) 66
 - Tunnel restriction code C/E
- 14.4. Packing group I
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Not available.

RID

- 14.1. UN number UN2630
- 14.2. UN proper shipping name Selenates or Selenites
- 14.3. Transport hazard class(es)
 - Class 6.1(PGI, II)
 - Subsidiary risk -
 - Label(s) 6.1
- 14.4. Packing group I
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Not available.

ADN

- 14.1. UN number UN2630
- 14.2. UN proper shipping name Selenates or Selenites
- 14.3. Transport hazard class(es)
 - Class 6.1(PGI, II)
 - Subsidiary risk -
 - Label(s) 6.1
- 14.4. Packing group I
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Not available.

IATA

- 14.1. UN number UN2630
- 14.2. UN proper shipping name Selenates and Selenites
- 14.3. Transport hazard class(es)
 - Class 6.1(PGI, II)
 - Subsidiary risk -
 - Label(s) 6.1
- 14.4. Packing group I
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Not available.

IMDG

- 14.1. UN number UN2630
- 14.2. UN proper shipping name SELENITES

14.3. Transport hazard class(es)

Class 6.1

Subsidiary risk -

14.4. Packing group I

14.5. Environmental hazards

Marine pollutant No.

EmS F-A, S-A

14.6. Special precautions for user Not available.

ADN; ADR; IATA; IMDG; RID



General information IMDG Regulated Marine Pollutant.

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 (EU) 2019/1021 On persistent organic pollutants (recast), 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

COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)

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

Not listed.

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

COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)

Sodium Selenite (Na₂SeO₃) (CAS 10102-18-8)

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended.

National regulations Follow national regulation for work with chemical agents. Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, 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.

Revision information Composition / Information on Ingredients: Ingredient Classification
Physical & Chemical Properties: Multiple Properties

Training information Follow training instructions when handling this material.

Disclaimer This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.

To avoid any misunderstandings or incorrect assumptions by the receiver of the safety information, it should be made clear that the supplied information is not in the form of a Safety Data Sheet (SDS), but is actually a voluntary Product Information Sheet closely following the guidelines of the Safety Data Sheet – COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 (REACH/SDS).