



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 Nickel Product
Registration number -
Document number 245
Synonyms None.
Issue date 27-June-2019
Version number 01

1.3. Details of the supplier of the product information sheet

Supplier

Company name Materion Advanced Materials Group
Address 42 Mt. Ebo Road South
Brewster, NY 10509
United States

Division

Telephone 1+845.279.0900

e-mail Not available.

Contact person Not available.

1.4. Emergency telephone number Chemtrec 1+703.527.3887

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

Identified uses Not available.

Uses advised against None known.

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

Health hazards

| | | |
|--|---|---|
| Skin sensitisation | Category 1 | H317 - May cause an allergic skin reaction. |
| Carcinogenicity | Category 2 | H351 - Suspected of causing cancer. |
| Specific target organ toxicity - single exposure | Category 3 respiratory tract irritation | H335 - May cause respiratory irritation. |
| Specific target organ toxicity - repeated exposure | Category 2 | H373 - May cause damage to organs through prolonged or repeated exposure. |

Environmental hazards

| | | |
|--|------------|--|
| Hazardous to the aquatic environment, acute aquatic hazard | Category 1 | H400 - Very toxic to aquatic life. |
| Hazardous to the aquatic environment, long-term aquatic hazard | Category 1 | H410 - Very toxic to aquatic life with long lasting effects. |

Hazard summary

May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer. May cause irritation to the respiratory system. May cause an allergic skin reaction. Prolonged exposure may cause chronic effects. Dangerous for the environment if discharged into watercourses. 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, Nickel

Hazard pictograms



Signal word

Warning

Hazard statements

| | |
|------|---|
| | The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated. |
| H317 | May cause an allergic skin reaction. |
| H335 | May cause respiratory irritation. |
| H351 | Suspected of causing cancer. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |

Precautionary statements

Prevention

| | |
|------|--|
| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| 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. |

Response

| | |
|-------------|--|
| P302 + P352 | IF ON SKIN: Wash with plenty of water. |
| P304 + P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P308 + P313 | IF exposed or concerned: Get medical advice/attention. |
| P333 + P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P362 + P364 | Take off contaminated clothing and wash it before reuse. |
| P391 | Collect spillage. |

Storage

| | |
|-------------|--|
| P403 + P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P405 | Store locked up. |

Disposal

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

Supplemental label information

100 % of the mixture consists of component(s) of unknown acute oral toxicity. 100 % of the mixture consists of component(s) of unknown acute dermal toxicity.

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 | 75 - 99 | 7440-50-8 231-159-6 | - | 029-019-01-X | |
| Classification: | Aquatic Chronic 1;H410(M=100) | | | | |
| Nickel | 1 - 25 | 7440-02-0 231-111-4 | 01-2119438727-29-0049 | 028-002-00-7 | |
| Classification: | Skin Sens. 1;H317, STOT SE 3;H335, Carc. 2;H351, STOT RE 2;H373 | | | | |

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments

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

SECTION 4: First aid measures

| | |
|--|---|
| General information | IF exposed or concerned: Get medical advice/attention. 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. Wash contaminated clothing before reuse. |
| 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 poison centre or doctor/physician if you feel unwell. |
| Skin contact | Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. |
| Eye contact | Rinse with water. Get medical attention if irritation develops and persists. |
| Ingestion | Rinse mouth. Get medical attention if symptoms occur. |
| 4.2. Most important symptoms and effects, both acute and delayed | May cause respiratory irritation. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects. |
| 4.3. Indication of any immediate medical attention and special treatment needed | Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed. |

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. Carbon dioxide (CO ₂). |
| 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 | 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. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. 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 entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Following product recovery, flush area with water. Put material in suitable, covered, labeled containers. |
| 6.4. Reference to other sections | For personal protection, see section 8. For waste disposal, see section 13. |

SECTION 7: Handling and storage

| | |
|---|---|
| 7.1. Precautions for safe handling | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. 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 locked up. 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 Ordinance (GwV), BGBl. II, no. 184/2001**

| Components | Type | Value | Form |
|------------------------|------|-----------------------|---------------------------|
| copper (CAS 7440-50-8) | MAK | 1 mg/m ³ | Inhalable fraction. |
| | | 0,1 mg/m ³ | Fume and respirable dust. |
| | STEL | 4 mg/m ³ | Inhalable fraction. |
| | | 0,4 mg/m ³ | Fume and respirable dust. |

Austria. TRK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

| Components | Type | Value | Form |
|------------------------|------|-----------------------|-----------------|
| Nickel (CAS 7440-02-0) | STEL | 2 mg/m ³ | Inhalable dust. |
| | TWA | 0,5 mg/m ³ | Inhalable dust. |

Belgium. Exposure Limit Values.

| Components | Type | Value | Form |
|------------------------|------|-----------------------|----------------|
| copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0,2 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TWA | 1 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 (CAS 7440-50-8) | TWA | 0,1 mg/m ³ |
| Nickel (CAS 7440-02-0) | TWA | 0,05 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 (CAS 7440-50-8) | MAC | 0,21 mg/m ³ | Dust and fume. |
| | STEL | 2 mg/m ³ | Dust and fume. |
| Nickel (CAS 7440-02-0) | MAC | 0,5 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 (CAS 7440-50-8) | TWA | 0,2 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TWA | 1 mg/m ³ | |

Czech Republic. OELs. Government Decree 361

| Components | Type | Value | Form |
|------------------------|---------|-----------------------|-------|
| copper (CAS 7440-50-8) | Ceiling | 2 mg/m ³ | Dust. |
| | | 0,2 mg/m ³ | Fume. |
| | TWA | 1 mg/m ³ | Dust. |
| | | 0,1 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | Ceiling | 1 mg/m ³ | |
| | TWA | 0,5 mg/m ³ | |

Denmark. Exposure Limit Values

| Components | Type | Value | Form |
|------------------------|------|------------------------|-------|
| copper (CAS 7440-50-8) | TLV | 1 mg/m ³ | Dust. |
| | | 0,1 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TLV | 0,05 mg/m ³ | Dust. |

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

| Components | Type | Value | Form |
|------------------------|------|-----------------------|------------------|
| copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Total dust. |
| | | 0,2 mg/m ³ | Respirable dust. |
| Nickel (CAS 7440-02-0) | TWA | 0,5 mg/m ³ | |

Finland. Workplace Exposure Limits

| Components | Type | Value | Form |
|------------------------|------|------------------------|------------------------------|
| copper (CAS 7440-50-8) | TWA | 0,1 mg/m ³ | Respirable dust and/or fume. |
| | | 0,02 mg/m ³ | Respirable. |
| Nickel (CAS 7440-02-0) | TWA | 0,01 mg/m ³ | Respirable. |

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

| Components | Type | Value | Form |
|------------------------|---|---|-------|
| copper (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) | | |
| Nickel (CAS 7440-02-0) | VME | 1 mg/m ³ | |
| | | 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 (CAS 7440-50-8) | TWA | 0,01 mg/m ³ | Respirable fraction. |

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

| Components | Type | Value | Form |
|------------------------|------|-------------------------|----------------------|
| Nickel (CAS 7440-02-0) | AGW | 0,006 mg/m ³ | Respirable fraction. |

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

| Components | Type | Value | Form |
|------------------------|------|-----------------------|-------|
| copper (CAS 7440-50-8) | TWA | 2 mg/m ³ | Dust. |
| | | 1 mg/m ³ | Dust. |
| | | 0,2 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TWA | 1 mg/m ³ | |

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

| Components | Type | Value | Form |
|------------------------|---------|-----------------------|--------|
| copper (CAS 7440-50-8) | TWA | 4 mg/m ³ | |
| | | 0,4 mg/m ³ | Smoke. |
| | | 0,1 mg/m ³ | Smoke. |
| Nickel (CAS 7440-02-0) | Ceiling | 0,1 mg/m ³ | |

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

| Components | Type | Value | Form |
|------------------------|------|------------------------|------------------|
| copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Total dust. |
| | | 0,1 mg/m ³ | Respirable dust. |
| Nickel (CAS 7440-02-0) | TWA | 0,05 mg/m ³ | Dust. |

Ireland. Occupational Exposure Limits

| Components | Type | Value | Form |
|------------------------|------|---------------------|----------------|
| copper (CAS 7440-50-8) | STEL | 2 mg/m ³ | Dust and mist. |
| | TWA | 1 mg/m ³ | Dust and mist. |

Ireland. Occupational Exposure Limits Components

| Components | Type | Value | Form |
|------------------------|------|-----------------------|-------|
| Nickel (CAS 7440-02-0) | TWA | 0,2 mg/m ³ | Fume. |
| | | 0,5 mg/m ³ | |

Italy. Occupational Exposure Limits Components

| Components | Type | Value | Form |
|------------------------|------|-----------------------|---------------------|
| copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0,2 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TWA | 1,5 mg/m ³ | Inhalable fraction. |

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

| Components | Type | Value | Form |
|------------------------|------|------------------------|------|
| copper (CAS 7440-50-8) | STEL | 1 mg/m ³ | |
| | TWA | 0,5 mg/m ³ | |
| Nickel (CAS 7440-02-0) | TWA | 0,05 mg/m ³ | |

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

| Components | Type | Value | Form |
|------------------------|------|-----------------------|----------------------|
| copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Inhalable fraction. |
| | | 0,2 mg/m ³ | Respirable fraction. |
| Nickel (CAS 7440-02-0) | TWA | 0,5 mg/m ³ | |

Netherlands. OELs (binding) Components

| Components | Type | Value | Form |
|------------------------|------|-----------------------|---------------------|
| copper (CAS 7440-50-8) | TWA | 0,1 mg/m ³ | Inhalable fraction. |

Norway. Administrative Norms for Contaminants in the Workplace Components

| Components | Type | Value | Form |
|------------------------|------|------------------------|-------|
| copper (CAS 7440-50-8) | TLV | 1 mg/m ³ | Dust. |
| | | 0,1 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TLV | 0,05 mg/m ³ | |

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

| Components | Type | Value | Form |
|------------------------|------|------------------------|------|
| copper (CAS 7440-50-8) | TWA | 0,2 mg/m ³ | |
| Nickel (CAS 7440-02-0) | TWA | 0,25 mg/m ³ | |

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

| Components | Type | Value | Form |
|------------------------|------|-----------------------|---------------------|
| copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0,2 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TWA | 1,5 mg/m ³ | Inhalable fraction. |

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

| Components | Type | Value | Form |
|------------------------|------|-----------------------|-------|
| copper (CAS 7440-50-8) | STEL | 1,5 mg/m ³ | Dust. |
| | | 0,2 mg/m ³ | Fume. |
| | TWA | 0,5 mg/m ³ | Dust. |
| Nickel (CAS 7440-02-0) | STEL | 0,5 mg/m ³ | |
| | TWA | 0,1 mg/m ³ | |

Slovakia. OELs for carcinogens and mutagens. Regulation No. 46/2002 on carcinogenic and mutagenic substances Components

| Components | Type | Value | Form |
|------------------------|------|------------------------|---------------------|
| Nickel (CAS 7440-02-0) | TWA | 0,05 mg/m ³ | Inhalable fraction. |

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

| Components | Type | Value | Form |
|------------------------|------|---------------------|---------------------|
| copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Inhalable fraction. |

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

| Components | Type | Value | Form |
|------------|------|-----------------------|------------------|
| | | 0,2 mg/m ³ | Respirable fume. |

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 |
|------------------------|------|-----------------------|---------------------|
| copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Inhalable fraction. |
| | | 0,1 mg/m ³ | Respirable fume. |
| Nickel (CAS 7440-02-0) | TWA | 0,5 mg/m ³ | Inhalable fraction. |

Spain. Occupational Exposure Limits

| Components | Type | Value | Form |
|------------------------|------|-----------------------|----------------|
| copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0,2 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TWA | 1 mg/m ³ | |

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

| Components | Type | Value | Form |
|------------------------|------|------------------------|------------------|
| copper (CAS 7440-50-8) | TWA | 0,01 mg/m ³ | Respirable dust. |
| Nickel (CAS 7440-02-0) | TWA | 0,5 mg/m ³ | Total dust. |

Switzerland. SUVA Grenzwerte am Arbeitsplatz

| Components | Type | Value | Form |
|------------------------|------|-----------------------|---------------------|
| copper (CAS 7440-50-8) | STEL | 0,2 mg/m ³ | Inhalable fraction. |
| | TWA | 0,1 mg/m ³ | Inhalable fraction. |
| Nickel (CAS 7440-02-0) | TWA | 0,5 mg/m ³ | Inhalable fraction. |

UK. EH40 Workplace Exposure Limits (WELs)

| Components | Type | Value | Form |
|------------------------|------|-----------------------|----------------------------|
| copper (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. |
| Nickel (CAS 7440-02-0) | TWA | 0,5 mg/m ³ | |

Biological limit values

Czech Republic. Limit Values for Indicators of Biological Exposure Tests in Urine and Blood, Annex 2, Tables 1 and 2, Government Decree 432/2003 Sb.

| Components | Value | Determinant | Specimen | Sampling Time |
|------------------------|-----------------|-------------|---------------------|---------------|
| Nickel (CAS 7440-02-0) | 0,077 µmol/mmol | Nickel | Creatinine in urine | * |
| | 0,04 mg/g | Nickel | Creatinine in urine | * |

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

Finland. HTP-arvot, App 2., Biological Limit Values, (BRA/BGV), Social Affairs and Ministry of Health

| Components | Value | Determinant | Specimen | Sampling Time |
|------------------------|------------|-------------|----------|---------------|
| Nickel (CAS 7440-02-0) | 0,1 µmol/l | Nickel | Urine | * |

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

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 |
|------------------------|-----------------|-------------|---------------------|---------------|
| Nickel (CAS 7440-02-0) | 0,02 mg/g | Nickel | Creatinine in urine | * |
| | 0,038 µmol/mmol | Nickel | 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 |
|------------|-------|-------------|----------|---------------|
|------------|-------|-------------|----------|---------------|

| | | | | |
|------------------------|---------|--------|-------|---|
| Nickel (CAS 7440-02-0) | 45 µg/l | Nickel | Urine | * |
|------------------------|---------|--------|-------|---|

* - 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 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 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 If contact is likely, safety glasses with side shields are recommended.

Skin protection

- Hand protection Wear appropriate chemical resistant gloves.

- Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

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

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

Observe any medical surveillance requirements. 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

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 Solid.

Colour Not available.

Odour Not available.

Odour threshold Not available.

pH Not available.

Melting point/freezing point 1083 °C (1981,4 °F) estimated

Initial boiling point and boiling range 2595 °C (4703 °F) estimated

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Vapour pressure 0,13 hPa estimated

Vapour density Not available.

| | |
|--|----------------|
| Relative density | Not available. |
| Solubility(ies) | |
| Solubility (water) | Not available. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Explosive properties | Not explosive. |
| Oxidising properties | Not oxidising. |

9.2. Other information

| | |
|-------------------------|----------------------------------|
| Density | 8,93 g/cm ³ estimated |
| Specific gravity | 8,93 estimated |

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 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials. |
| 10.5. Incompatible materials | Strong acids. |
| 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 | May cause irritation to the respiratory system. Prolonged inhalation may be harmful. |
| Skin contact | May cause an allergic skin reaction. |
| Eye contact | Direct contact with eyes may cause temporary irritation. |
| Ingestion | May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure. |

Symptoms May cause respiratory irritation. May cause an allergic skin reaction. Dermatitis. Rash.

11.1. Information on toxicological effects

| | |
|--|---|
| Acute toxicity | Not known. |
| Skin corrosion/irritation | Due to partial or complete lack of data the classification is not possible. |
| Serious eye damage/eye irritation | Due to partial or complete lack of data the classification is not possible. |
| 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 | Suspected of causing cancer. |

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

Nickel (CAS 7440-02-0) 2B Possibly carcinogenic to humans.

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

Nickel (CAS 7440-02-0) Carcinogenic, Category 2.

| | |
|---|---|
| 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 | May cause damage to organs through prolonged or repeated exposure. |
| 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 Very toxic to aquatic life with long lasting effects.

| Product | Species | Test Results |
|-----------------------|--------------|---------------------------------|
| Copper Nickel Product | | |
| Aquatic | | |
| Crustacea | EC50 Daphnia | 0,1616 mg/l, 48 hours estimated |
| Fish | LC50 Fish | 2,5349 mg/l, 96 hours estimated |

| Components | Species | Test Results |
|------------------------|---|--------------------------------|
| copper (CAS 7440-50-8) | | |
| Aquatic | | |
| Crustacea | EC50 Water flea (Daphnia magna) | 0,036 mg/l, 48 hours |
| Fish | LC50 Fathead minnow (Pimephales promelas) | 0,0319 - 0,0544 mg/l, 96 hours |

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 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 groundwater Data

| | |
|------------------------|-----------------------|
| copper (CAS 7440-50-8) | Copper (Cu) 1000 ug/l |
| | Copper (Cu) 15 ug/l |
| Nickel (CAS 7440-02-0) | Nickel (Ni) 10 ug/l |
| | Nickel (Ni) 200 ug/l |

Estonia Dangerous substances in soil Data

| | |
|------------------------|-----------------------|
| copper (CAS 7440-50-8) | Copper (Cu) 100 mg/kg |
| | Copper (Cu) 150 mg/kg |
| | Copper (Cu) 500 mg/kg |
| Nickel (CAS 7440-02-0) | Nickel (Ni) 150 mg/kg |
| | Nickel (Ni) 50 mg/kg |
| | Nickel (Ni) 500 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. - 14.6.: Not regulated as dangerous goods.

RID

14.1. UN number UN3077

14.2. UN proper shipping name Environmentally hazardous substance, solid, n.o.s.

14.3. Transport hazard class(es)

Class 9

Subsidiary risk -

Label(s) 9

14.4. Packing group III

14.5. Environmental hazards Yes

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN

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

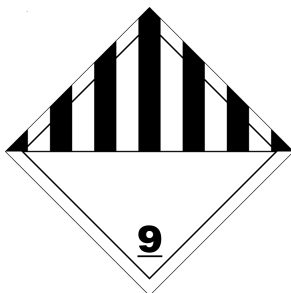
IATA

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

IMDG

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

RID



Marine pollutant



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 (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

copper (CAS 7440-50-8)

Nickel (CAS 7440-02-0)

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

Nickel (CAS 7440-02-0)

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 (CAS 7440-50-8)

Other regulations

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

National regulations

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

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. 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.

Training information

Follow training instructions when handling this material.

Disclaimer

Materion Advanced Materials Group cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. 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).