

# SAFETY DATA SHEET

Magnetized Materials

## Section 1. Identification

This product is considered an article. This Material Safety Data Sheet is written based on the encapsulated substance or mixture in this article.

### 1.1 Product identifier

**Product name:** Magnetized Materials

**Part No.:** :5517A/B/C/CL/CN05/D/D-C05/DL/EL/FL/GL/R, 5519A/B

**Validation date:** 08/22/2022

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

**Material uses:** : Analytical chemistry.

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

**Supplier/Manufacturer:** : Keysight Technologies, Inc.  
1400 Fountaingrove Parkway  
Santa Rosa, California 95403

**1.4 Emergency telephone number In case of emergency: INFOTRAC:** Within USA 1-800-535-5053,  
Outside USA 1-352-323-3500

## Section 2. Hazards identification

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product's directions for use it may present potential health and safety hazards.

### 2.1 Classification of the substance or mixture

**OSHA/HCS status:** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). **Classification of the substance or mixture**

H334 RESPIRATORY SENSITIZATION - Category 1

H317 SKIN SENSITIZATION - Category 1

H351 CARCINOGENICITY - Category 2

H372 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

**Ingredients of unknown toxicity:** : Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 59%

### 2.2 GHS label elements

**Hazard pictograms:** :



**Signal word** : Danger

**Hazard statements** : H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 - May cause an allergic skin reaction.

H351 - Suspected of causing cancer.

H372 - Causes damage to organs through prolonged or repeated exposure.

**Precautionary statements**

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## Section 2. Hazards identification

- Prevention** : P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P281 - Use personal protective equipment as required.  
P280 - Wear protective gloves.  
P285 - In case of inadequate ventilation wear respiratory protection.  
P260 - Do not breathe dust.  
P270 - Do not eat, drink or smoke when using this product.  
P264 - Wash hands thoroughly after handling.  
P272 - Contaminated work clothing should not be allowed out of the workplace.
- Response** : P314 - Get medical attention if you feel unwell.  
P308 + P313 - IF exposed or concerned: Get medical attention.  
P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or physician.  
P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse.  
P333 + P313 - If skin irritation or rash occurs: Get medical attention.
- Storage** : P405 - Store locked up.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

### 2.3 Other hazards

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product's directions for use it may present potential health and safety hazards.

**Substance/mixture** : Mixture (encapsulated in article)

| <b>Ingredient name</b> | <b>%</b> | <b>CAS number</b> |
|------------------------|----------|-------------------|
| Cobalt                 | 10 - 30  | 7440-48-4         |
| Nickel                 | 10 - 30  | 7440-02-0         |
| Aluminum               | 5 - 10   | 7429-90-5         |
| Copper                 | 1 - 5    | 7440-50-8         |

Magnetized materials are usually ferrous metallic items that produce a non-operating gaussian interference reading and have the potential to cause compass deflection in aircraft equipped with non-electrical navigation equipment.

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

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

**Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

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## Section 4. First aid measures

- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards. Over-exposure

#### signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
wheezing and breathing difficulties  
asthma
- Skin contact** : Adverse symptoms may include the following:  
irritation redness
- Ingestion** : No specific data.

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

**Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**Specific treatments** : No specific treatment.

**Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

**See toxicological information (Section 11)**

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** : None known.

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

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

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

### 5.3 Advice for firefighters

**Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

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

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

**6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

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

Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

## Section 7. Handling and storage

### Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

### 7.3 Specific end use(s)

#### Recommendations

#### Industrial sector specific solutions

: Industrial applications, Professional applications. :  
Not applicable.

## Section 8. Exposure controls/personal protection

Since the hazardous ingredient in this article is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.

### 8.1 Control parameters

#### Occupational exposure limits

| Ingredient name | Exposure limits  |
|-----------------|--|
| Cobalt          | <p><b>ACGIH TLV (United States, 6/2013).</b><br/>TWA: 0.02 mg/m<sup>3</sup>, (as Co) 8 hours.</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b><br/>TWA: 0.05 mg/m<sup>3</sup>, (as Co) 8 hours.</p> <p><b>NIOSH REL (United States, 10/2013).</b><br/>TWA: 0.05 mg/m<sup>3</sup>, (as Co) 10 hours. Form: Dust and fumes</p> <p><b>OSHA PEL (United States, 2/2013).</b><br/>TWA: 0.1 mg/m<sup>3</sup>, (as Co) 8 hours.</p> |
| Nickel          | <p><b>OSHA PEL 1989 (United States, 3/1989).</b><br/>TWA: 1 mg/m<sup>3</sup>, (as Ni) 8 hours.</p> <p><b>NIOSH REL (United States, 10/2013).</b><br/>TWA: 0.015 mg/m<sup>3</sup>, (as Ni) 10 hours.</p> <p><b>ACGIH TLV (United States, 6/2013).</b><br/>TWA: 1.5 mg/m<sup>3</sup> 8 hours. Form: Inhalable fraction</p> <p><b>OSHA PEL (United States, 2/2013).</b><br/>TWA: 1 mg/m<sup>3</sup>, (as Ni) 8 hours.</p>           |

|           |  |
|-----------|--|
| Aluminium | <p><b>OSHA PEL 1989 (United States, 3/1989).</b><br/> <b>Notes: as Al</b><br/> TWA: 15 mg/m<sup>3</sup>, (as Al) 8 hours. Form: Dust<br/> TWA: 5 mg/m<sup>3</sup>, (as Al) 8 hours. Form: Pyrophoric<br/> TWA: 5 mg/m<sup>3</sup>, (as Al) 8 hours. Form: Respirable fraction<br/> TWA: 5 mg/m<sup>3</sup>, (as Al) 8 hours. Form: Welding fume</p> <p><b>OSHA PEL (United States, 2/2013). Notes: as Al</b><br/> TWA: 15 mg/m<sup>3</sup>, (as Al) 8 hours. Form: Total</p> |
|-----------|--|

**Section 8. Exposure controls/personal protection**

|        |   |
|--------|---|
| Copper | <p>dust<br/> <b>NIOSH REL (United States, 10/2013).</b><br/> TWA: 5 mg/m<sup>3</sup> 10 hours. Form: Respirable fraction<br/> TWA: 10 mg/m<sup>3</sup> 10 hours. Form: Total</p> <p><b>ACGIH TLV (United States, 6/2013).</b><br/> TWA: 1 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction</p> <p><b>OSHA PEL (United States, 2/2013).</b><br/> TWA: 5 mg/m<sup>3</sup>, (as Al) 8 hours. Form: Respirable fraction</p> <p><b>ACGIH TLV (United States, 6/2013). Notes: as Cu</b><br/> TWA: 1 mg/m<sup>3</sup>, (as Cu) 8 hours. Form: Dust and mist</p> <p><b>OSHA PEL 1989 (United States, 3/1989). Notes: as Cu</b><br/> TWA: 1 mg/m<sup>3</sup>, (as Cu) 8 hours. Form: Dusts and Mists<br/> TWA: 0.1 mg/m<sup>3</sup>, (as Cu) 8 hours. Form: Fume</p> <p><b>NIOSH REL (United States, 10/2013).</b><br/> TWA: 1 mg/m<sup>3</sup>, (as Cu) 10 hours. Form: Dusts and Mists</p> <p><b>OSHA PEL (United States, 2/2013).</b><br/> TWA: 1 mg/m<sup>3</sup> 8 hours. Form: Dusts and Mists<br/> TWA: 0.1 mg/m<sup>3</sup> 8 hours. Form: Fume</p> <p><b>ACGIH TLV (United States, 6/2013).</b><br/> TWA: 0.2 mg/m<sup>3</sup> 8 hours. Form: Fume</p> |
|--------|---|

**8.2 Exposure controls**

**Appropriate engineering controls** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### **Individual protection measures**

#### **Hygiene measures**

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side shields. **Skin protection**



## Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and chemical properties

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## 9.1 Information on basic physical and chemical properties

### Appearance

|   |   |
|---|---|
| <b>Physical state</b>                               | : Solid.  |
| <b>Color</b>  | : Not available.  |
| <b>Odor</b>   | : Odorless.   |
| <b>Odor threshold</b>                               | : Not available.  |
| <b>pH</b>   | : Not available.  |
| <b>Melting point</b>                                | : Not available.  |
| <b>Boiling point</b>                                | : Not available.  |
| <b>Flash point</b>                                  | : Not available.  |
| <b>Evaporation rate</b>                             | : Not available.  |
| <b>Flammability (solid, gas)</b>                    | : Not available.  |
| <b>Lower and upper explosive (flammable) limits</b> | : Not available.  |
| <b>Vapor pressure</b>                               | : Not available.  |
| <b>Vapor density</b>                                | : Not available.  |
| <b>Relative density</b>                             | : Not available.  |
| <b>Solubility</b>                                   | : Insoluble in the following materials: cold water and hot water. |
| <b>Solubility in water</b>                          | : Not available.  |
| <b>Partition coefficient: noctanol/water</b>        | : Not available.  |
| <b>Auto-ignition temperature</b>                    | : Not available.  |
| <b>Decomposition temperature</b>                    | : Not available.  |
| <b>Viscosity</b>                                    | : Not available.  |

## Section 10. Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : The product is stable.

**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials, acids and moisture.

**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects Acute toxicity

| Product/ingredient name | Result    | Species | Dose        | Exposure |
|-------------------------|-----------|---------|-------------|----------|
| Cobalt                  | LD50 Oral | Rat     | 6170 mg/kg  | -        |
| Nickel                  | LD50 Oral | Rat     | >9000 mg/kg | -        |

#### Irritation/Corrosion

Not available.

#### Sensitization

Not available.

#### Mutagenicity

Not available.

#### Carcinogenicity

Not available.

#### Classification

| Product/ingredient name | OSHA | IARC | NTP  |
|-------------------------|------|------|--|
| Cobalt                  | -    | 2B   | -  |
| Nickel                  | -    | 2B   | Reasonably anticipated to be a human carcinogen. |

#### Reproductive toxicity

Not available.

#### Teratogenicity

Not available.

#### Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure) Not available.

## Section 11. Toxicological information

| Name      | Category   | Route of exposure | Target organs              |
|-----------|------------|-------------------|----------------------------|
| Nickel    | Category 1 | Inhalation        | lungs and nose/<br>sinuses |
| Aluminium | Category 2 | Inhalation        | lungs                      |
| Copper    | Category 2 | Not determined    | liver                      |

### Aspiration hazard

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

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

**Inhalation** : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Skin contact** : May cause an allergic skin reaction.

**Ingestion** : No known significant effects or critical hazards.

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

**Eye contact** : No specific data.

**Inhalation** : Adverse symptoms may include the following:  
wheezing and breathing difficulties  
asthma

**Skin contact** : Adverse symptoms may include the following:  
irritation redness  
: No specific data.

**Ingestion**

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

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

Not available.

**General** : Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Carcinogenicity** : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : No known significant effects or critical hazards.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : No known significant effects or critical hazards.

## Section 11. Toxicological information

### Numerical measures of toxicity

Acute toxicity estimates Not available.

## Section 12. Ecological information

### 12.1 Toxicity

| Product/ingredient name | Result                             | Species  | Exposure |
|-------------------------|------------------------------------|--|----------|
| Cobalt                  | Acute LC50 4400 µg/l               | Daphnia - Daphnia magna  | 48 hours |
|                         | Acute LC50 3.4 mg/l Fresh water    | Fish - Pimephales promelas   | 96 hours |
| Nickel                  | Acute EC50 2 ppm Marine water      | Algae - Macrocytis pyrifera - Young  | 4 days   |
|                         | Acute EC50 450 µg/l Fresh water    | Aquatic plants - Lemna minor   | 4 days   |
|                         | Acute EC50 1000 µg/l Marine water  | Daphnia - Daphnia magna  | 48 hours |
|                         | Acute IC50 0.31 mg/l Marine water  | Crustaceans - Americamysis bahia - Juvenile (Fledgling, Hatchling, Weanling) | 48 hours |
|                         | Acute LC50 47.5 ng/L Fresh water   | Fish - Heteropneustes fossilis   | 96 hours |
|                         | Chronic NOEC 100 mg/l Marine water | Algae - Glenodinium halli  | 72 hours |
|                         | Chronic NOEC 3.5 µg/l Fresh water  | Fish - Cyprinus carpio   | 4 weeks  |
| Aluminium               | Acute LC50 38000 µg/l              | Daphnia - Daphnia magna  | 48 hours |
|                         | Acute LC50 120 µg/l Fresh water    | Fish - Oncorhynchus mykiss Embryo  | 96 hours |
|                         | Chronic NOEC 9 mg/l Fresh water    | Aquatic plants - Ceratophyllum demersum                                      | 3 days   |
| Copper                  | Acute EC50 1100 µg/l Fresh water   | Aquatic plants - Lemna minor   | 4 days   |
|                         | Acute EC50 2.1 µg/l Fresh water    | Daphnia - Daphnia longispina Juvenile (Fledgling, Hatchling, Weanling)       | 48 hours |
|                         | Acute IC50 13 µg/l Fresh water     | Algae - Pseudokirchneriella subcapitata - Exponential growth phase           | 72 hours |
|                         | Acute IC50 5.4 mg/l Marine water   | Aquatic plants - Plantae - Exponential growth phase                          | 72 hours |
|                         | Acute LC50 0.072 µg/l Marine water | Crustaceans - Amphipoda - Adult  | 48 hours |
|                         | Acute LC50 7.56 µg/l Marine water  | Fish - Periophthalmus waltoni Adult  | 96 hours |
|                         | Chronic NOEC 2.5 µg/l Marine water | Algae - Nitzschia closterium Exponential growth phase                        | 72 hours |
|                         | Chronic NOEC 7 mg/l Fresh water    | Aquatic plants - Ceratophyllum demersum                                      | 3 days   |
|                         | Chronic NOEC 0.02 mg/l Fresh water | Crustaceans - Cambarus bartonii - Mature                                     | 21 days  |
|                         | Chronic NOEC 2 µg/l Fresh water    | Daphnia - Daphnia magna  | 21 days  |

|  |                                   |  |         |
|--|-----------------------------------|--|---------|
|  | Chronic NOEC 0.8 µg/l Fresh water | Fish - Oreochromis niloticus<br>Juvenile (Fledgling, Hatchling,<br>Weanling) | 6 weeks |
|--|-----------------------------------|--|---------|

### 12.2 Persistence and degradability

**Conclusion/Summary** : Ferrous alloy leachate may cause hazardous conditions in groundwater, avoid landfill disposal of used and unused metals.

### 12.3 Bioaccumulative potential

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## Section 12. Ecological information

| Product/ingredient name | LogP <sub>ow</sub> | BCF   | Potential |
|-------------------------|--------------------|-------|-----------|
| Cobalt                  | -                  | 15600 | high      |

### 12.4 Mobility in soil

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

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

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

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

**Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.**

**The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.**

**Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.**

## Section 14. Transport information

**This Material Safety Data Sheet is written based on the encapsulated substance or mixture in this article. Since the hazardous ingredient is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.**

**Additional information** : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Remarks**

Magnetized materials are only considered dangerous goods when offered for transportation by air. Shippers should consult their air carriers prior to offering the shipment for transportation.


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**Section 14. Transport information**

| Regulatory information | UN number      | Proper shipping name | Classes | PG* | Label | Additional information   |
|------------------------|----------------|----------------------|---------|-----|-------|--|
| DOT                    | Not regulated. |                      | 9       |     |       | <p><b>Remarks</b><br/>Magnetized materials are only considered dangerous goods when offered for transportation by air.</p> |
| IMDG                   | Not Regulated  |                      | 9       |     |       | <p><b>Special provisions</b><br/>960</p>   |



## Section 14. Transport information

|      |        |                     |   |   |   |  |
|------|--------|---------------------|---|---|---|--|
| IATA | UN2807 | Magnetized material | 9 | - |  | <p><b>Passenger and Cargo Aircraft</b><br/>Packaging instructions: 953</p> <p><b>Cargo Aircraft Only</b><br/>Packaging instructions: 953</p> |
|------|--------|---------------------|---|---|---|--|

## Section 15. Regulatory information

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

#### U.S. Federal regulations

#### SARA 302/304

: **United States inventory (TSCA 8b):** All components are listed or exempted.  
**Clean Water Act (CWA) 307:** Nickel; Copper

#### Clean Air Act Section 112

: Listed

#### (b) Hazardous Air Pollutants (HAPs)

#### Clean Air Act Section 602 Class I Substances

: Not listed

#### Clean Air Act Section 602 Class II Substances

: Not listed

#### DEA List I Chemicals (Precursor Chemicals)

: Not listed

#### DEA List II Chemicals (Essential Chemicals)

: Not listed

#### Composition/information on ingredients

No products were found.

#### SARA 304 RQ

: Not applicable.

#### SARA 311/312

#### Classification

: Immediate (acute) health hazard  
 Delayed (chronic) health hazard

#### Composition/information on ingredients

## Section 15. Regulatory information

| Name      | %       | Fire hazard | Sudden release of pressure | Reactive | Immediate (acute) health hazard | Delayed (chronic) health hazard |
|-----------|---------|-------------|----------------------------|----------|---------------------------------|---------------------------------|
| Cobalt    | 10 - 30 | No.         | No.                        | No.      | Yes.                            | Yes.                            |
| Nickel    | 10 - 30 | No.         | No.                        | No.      | Yes.                            | Yes.                            |
| Aluminium | 5 - 10  | Yes.        | No.                        | No.      | No.                             | Yes.                            |
| Copper    | 1 - 5   | No.         | No.                        | No.      | No.                             | Yes.                            |

### SARA 313

|  | Product name | CAS number | %       |
|--|--------------|------------|---------|
| <b>Form R - Reporting requirements</b> | Cobalt       | 7440-48-4  | 10 - 30 |
|  | Nickel       | 7440-02-0  | 10 - 30 |
|  | Aluminium    | 7429-90-5  | 5 - 10  |
|  | Copper       | 7440-50-8  | 1 - 5   |
| <b>Supplier notification</b>           | Cobalt       | 7440-48-4  | 10 - 30 |
|  | Nickel       | 7440-02-0  | 10 - 30 |
|  | Aluminium    | 7429-90-5  | 5 - 10  |
|  | Copper       | 7440-50-8  | 1 - 5   |

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed. [State regulations](#)

### regulations

#### Massachusetts

: The following components are listed: COBALT; NICKEL; ALUMINUM; COPPER

#### New York

: The following components are listed: Nickel; Copper

#### New Jersey

: The following components are listed: COBALT; NICKEL; ALUMINUM; COPPER; TITANIUM

#### Pennsylvania

: The following components are listed: COBALT FUME; NICKEL; ALUMINUM; COPPER FUME

### California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause cancer.

| Ingredient name | Cancer | Reproductive | No significant risk level | Maximum acceptable dosage level |
|-----------------|--------|--------------|---------------------------|---------------------------------|
| Cobalt          | Yes.   | No.          | No.                       | No.                             |
| Nickel          | Yes.   | No.          | No.                       | No.                             |

### Canada inventory

: All components are listed or exempted.

### International regulations

: **Australia inventory (AICS):** All components are listed or exempted.

#### International lists

**China inventory (IECSC):** All components are listed or exempted.

**Japan inventory:** Not determined.

**Korea inventory:** All components are listed or exempted.

**Malaysia Inventory (EHS Register):** Not determined.

**New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.

**Philippines inventory (PICCS):** Not determined.

**Taiwan inventory (CSNN):** Not determined.

#### Chemical Weapons

: Not listed

#### Convention List Schedule

#### I Chemicals

## Section 15. Regulatory information

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

## Section 16. Other information

### History

**Date of issue** : 08/22/2022

**Date of previous issue** : 05/08/2018

**Version** : 7

✔ Indicates information that has changed from previously issued version.

### Notice to reader

**Disclaimer:** The information contained in this document is based on Keysight's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.