SAFETY DATA SHEET

# Cobalt Chrome

## SECTION 1: Identification

### 1.1. Product identifier

**Trade name**

Cobalt Chrome

▼Other names / Synonyms

Document No.: H-5800-3510-02-B_EN

**Product no.**

A-5771-0404

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

**Relevant identified uses of the substance or mixture**

Metal powder for additive layer manufacture

**Uses advised against**

None known.

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

**Company and address**

**Renishaw plc**
New Mills
Wotton-under-Edge,
GL12 8JR, Gloucestershire,
United Kingdom
+44 (0) 1453 524524
www.renishaw.com

**E-mail**

msds@renishaw.com

**SDS date**

1/27/2023

**SDS Version**

1.1

**Date of previous version**

1/17/2023 (1.0)

### 1.4. Emergency telephone number

Contact the poison control at 1-800-222-1222 (24/7) or use the webPOISONCONTROL® (triage.webpoisoncontrol.org) to get specific guidance for your case
See also section 4 “First aid measures”.
Emergency contact from supplier: +44 (0) 1453 524524 (UK office hours 08:00 to 17:00 UTC Monday to Thursday, 08:00 to 16:00 Friday)

## SECTION 2: Hazard(s) identification

**OSHA/HCS status**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**Classification of the substance or mixture**

Skin Sens. 1; H317, May cause an allergic skin reaction.
Resp. Sens. 1; H334, May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Muta. 2; H341, Suspected of causing genetic defects.
Carc. 1B; H350, May cause cancer.
Repr. 1B; H360F, May damage fertility.

### 2.2. Label elements

**Hazard pictogram(s)**

### Signal word
Danger

### ▼Hazard statement(s)
May cause an allergic skin reaction. (H317)
May cause allergy or asthma symptoms or breathing difficulties if inhaled. (H334)
Suspected of causing genetic defects. (H341)
May cause cancer. (H350)
May damage fertility. (H360F)

### Safety statement(s)
#### General
-

#### Prevention
Obtain special instructions before use. (P201)
Avoid breathing dust. (P261)
Contaminated work clothing should not be allowed out of the workplace. (P272)
Wear eye protection/protective gloves/protective clothing. (P280)
[In case of inadequate ventilation] wear respiratory protection. (P284)

#### Response
IF INHALED: Remove person to fresh air and keep comfortable for breathing. (P304+P340)
IF exposed or concerned: Get medical advice/attention. (P308+P313)
If skin irritation or rash occurs: Get medical advice/attention. (P333+P313)
If experiencing respiratory symptoms: Call a POISON CENTER/doctor (P342+P311)
Take off contaminated clothing and wash it before reuse. (P362+P364)

#### Storage
-

#### Disposal
Dispose of contents/container in accordance with local regulation. (P501)

### Additional labelling
Restricted to professional users.

## 2.3. Other hazards
### Additional warnings
This mixture/product does not contain any substances considered to meet the criteria classifying them as PBT and/or vPvB.
May form explosible dust-air mixture if dispersed.

# SECTION 3: Composition/Information on Ingredients

## 3.1. Substances
Not applicable. This product is a mixture.

## 3.2. Mixtures

| Product/substance | Identifiers | % w/w | Classification | Note |
|---|---|---|---|---|
| Cobalt | CAS No.: 7440-48-4 | 62.2-66.5% | Skin Sens. 1, H317<br>Resp. Sens. 1, H334<br>Muta. 2, H341<br>Carc. 1B, H350<br>Repr. 1B, H360F | |
| Chromium | CAS No.: 7440-47-3 | 27-29% | | |
| Molybdenum | CAS No.: 7439-98-7 | 5.4-6.2% | | |
| Iron | CAS No.: 7439-89-6 | 0.2% | | |
| Nickel | CAS No.: 7440-02-0 | 0.1% | Skin Sens. 1, H317<br>Carc. 2, H351<br>STOT RE 1, H372 | |

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

### Other information
None known.

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

#### General information

If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 911 and give immediate treatment (first aid).
Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

#### Inhalation

Upon breathing difficulties or irritation of the respiratory tract: Bring the person into fresh air and stay with him/her.

#### Skin contact

Remove contaminated clothing and shoes immediately. Ensure to wash exposed skin thoroughly with water and soap. Skin cleanser can be used. DO NOT use solvents or thinners.
If skin irritation occurs: Get medical advice/attention.

#### Eye contact

Upon irritation of the eye: Remove contact lenses and open eyes widely. Flush eyes with water or saline water (20-30 °C) for at least 5 minutes. Seek medical assistance and continue flushing during transport.

#### Ingestion

Provide plenty of water for the person to drink and stay with him/her. In case of malaise, seek medical advice immediately and bring the safety data sheet or label from the product. Do not induce vomiting, unless recommended by the doctor. Have the person lean forward with head down to avoid inhalation of or choking on vomited material.

#### Burns

Not applicable.

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

None known.

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

IF exposed or concerned:
Get immediate medical advice/attention.

#### Information to medics

Bring this safety data sheet or the label from this product.

## SECTION 5: Fire-fighting measures

### 5.1. Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam, carbon dioxide, powder, water mist.
Unsuitable extinguishing media: Waterjets should not be used, since they can spread the fire.
Suitable extinguishing media: Use class D extinguishing agents on dust, fines or molten metal.
Unsuitable extinguishing media: Water, foam, halogenated extinguishing agents.

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

Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.

### 5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact the Poison Help Line on 1-800-222-1222 (24/7) in order to obtain further advice.

## SECTION 6: Accidental release measures

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

Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.
Avoid direct contact with spilled substances.
Evacuate surrounding areas.
Eliminate all ignition sources.
Ventilate the area.
Wear appropriate personal protective equipment (see section 8).

### 6.2. Environmental precautions

Avoid discharge to lakes, streams, sewers, etc. In the event of leakage to the surroundings, contact local

environmental authorities.

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

Collect spills carefully. Moist the material with water in order to prevent the formation and propagation of dust.
Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.
Use spark-proof tools and explosion-proof equipment.
Avoid dust generation.
Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container.

### 6.4. Reference to other sections

See section 13 “Disposal considerations” on handling of waste.
See section 8 "Exposure controls/personal protection" for protective measures.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.
Avoid direct contact with the product.
Smoking, drinking and consumption of food is not allowed in the work area.
See section 8 "Exposure controls/personal protection" for information on personal protection.
Take precautionary measures against static discharges.

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

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.
Powder trickling out onto the floor or onto other containers must be prevented.
Avoid the suspension of dust in the air.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Use non-sparking tools.

#### Recommended storage material

Always store in containers of the same material as the original container.

#### Storage temperature

Store in tightly closed original container in a dry, cool and well-ventilated place.
Store in accordance with local regulations.

#### Incompatible materials

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

### 7.3. Specific end use(s)

This product should only be used for applications quoted in section 1.2.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Cobalt
Long term exposure limit (OSHA Table Z-1) (mg/m³): 0.1
Long term exposure limit (ACGIH TLV) (mg/m³): 0.02
Long term exposure limit (NIOSH REL) (mg/m³): 0.05

Chromium
Long term exposure limit (OSHA Table Z-1) (mg/m³): 1 (metal and insol. salts)
Long term exposure limit (ACGIH TLV) (mg/m³): 0.5 (metal, inhalable)
Long term exposure limit (NIOSH REL) (mg/m³): 0.5

Molybdenum
Long term exposure limit (OSHA Table Z-1) (mg/m³): 5 (soluble compounds) / 15 (insoluble compounds - total dust)
Long term exposure limit (ACGIH TLV) (mg/m³): 0.5 (resp.)(soluble compounds) /10 (Inhalable) / 3 (resp.)(insoluble compounds)
Long term exposure limit (NIOSH REL) (mg/m³): 5 (soluble compounds)

Nickel
Long term exposure limit (OSHA Table Z-1) (mg/m³): 1
Long term exposure limit (ACGIH TLV) (mg/m³): elemental: 1.5 (Inhalable); insoluble inorganic compounds: 0.2 (Inhalable) / soluble inorganic compounds: 0.1 (Inhalable)
Long term exposure limit (NIOSH REL) (mg/m³): Potential occupational carcinogen; 0.015

Part 1910 - Occupational Safety and Health Standards (29 CFR 1910.1000 TABLE Z-1 - Limits for Air Contaminants)

## 8.2. Exposure controls

Compliance with the given occupational exposure limits values should be controlled on a regular basis.
Where necessary use lighting and electrical equipment designed for use in atmospheres where flammable vapours or dusts are present, and which can direct static electricity by grounding equipment.

### General recommendations

When transferring the materials, dust clouds should be kept at an absolute minimum. Handling should be slow and deliberate. The materials should be transferred from one container to another using a non-sparking, conductive metal scoop.
When mixing the material with other dry ingredients, frictional heat should be avoided. The best type of mixer for a dry mixing operation is one that contains no moving parts, but rather affects a tumbling action, such as a conical blender. Introduction of an inert atmosphere in the blender is highly recommended since dust clouds are generated. All equipment must be well grounded.
Smoking, drinking and consumption of food is not allowed in the work area.

### Exposure scenarios

There are no exposure scenarios implemented for this product.

### Exposure limits

Professional users are subjected to the legally set maximum concentrations for occupational exposure. See occupational hygiene limit values above.

### Appropriate technical measures

Do not recirculate outlet air that contain the substances.

### Hygiene measures

In between use of the product and at the end of the working day all exposed areas of the body must be washed thoroughly. Always wash hands, forearms and face.

### Measures to avoid environmental exposure

Keep damming materials near the workplace. If possible, collect spillage during work.

## 8.3. Individual protection measures, such as personal protective equipment

### Generally

Use only protective equipment with a recognized certification mark, e.g. the UL mark.

### Respiratory Equipment

| Type | Class | Colour | Standards | |
|---|---|---|---|---|
| SL | P3 | White | EN149 |  |

### Skin protection

| Recommended | Type/Category | Standards | |
|---|---|---|---|
| Dedicated work clothing should be worn. Wear a protective suit in the event of prolonged periods of work with the product. | - | - |  |
| Safety shoes | | EN ISO 20345 |  |

### Hand protection

| Material | Glove thickness (mm) | Breakthrough time (min.) | Standards | |
|---|---|---|---|---|
| Butyl | 0,3 | > 480 | EN374-2, EN374-3, EN388 |  |

### Eye protection

| Type | Standards | |
|---|---|---|
| Safety glasses with side shields. | EN166 |  |

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

**Physical state**
Powder

**Colour**
Gray

**Odour**
None

**Odour threshold (ppm)**
Testing not relevant or not possible due to the nature of the product.

**pH**
Not applicable - product is a solid

**Density (g/cm³)**
No information available as testing has not been completed.

**Relative density**
No information available as testing has not been completed.

**Viscosity**
Not applicable - product is a solid

**Phase changes**

**Melting point (°F)**
No information available as testing has not been completed.

**Boiling point (°F)**
No information available as testing has not been completed.

**Vapour pressure**
Not applicable - product is a solid

**Vapour density**
Does not apply to solids.

**Decomposition temperature (°F)**
No information available as testing has not been completed.

**Evaporation rate (n-butylacetate = 100)**
Not applicable - product is a solid

**Data on fire and explosion hazards**

**Flash point (°F)**
Does not apply to solids.

**Ignition (°F)**
Testing not relevant or not possible due to nature of the product.

**Auto flammability (°F)**
Testing not relevant or not possible due to nature of the product.

**Explosion limits (% v/v)**
Does not apply to solids.

**Solubility**

**Solubility in water**
Insoluble

**n-octanol/water coefficient**
No information available as testing has not been completed.

### 9.2. Other information

**Solubility in fat (g/L)**
No information available as testing has not been completed.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity
No data available.

### 10.2. Chemical stability
The product is stable under the conditions, noted in section 7 “Handling and storage”.

### 10.3. Possibility of hazardous reactions
None known.

### 10.4. Conditions to avoid

Avoid the suspension of dust in the air.

### 10.5. Incompatible materials

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

### 10.6. Hazardous decomposition products

The product is not degraded when used as specified in section 1.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute toxicity

| | |
|---|---|
| Product/substance | Cobalt |
| Test method | |
| Species | Rat |
| Route of exposure | Oral |
| Test | LD50 |
| Result | 6171 mg/kg |
| Other information | |

| | |
|---|---|
| Product/substance | Chromium |
| Test method | |
| Species | Rat |
| Route of exposure | |
| Test | ED50 |
| Result | > 3400 mg/kg |
| Other information | |

| | |
|---|---|
| Product/substance | Iron |
| Test method | |
| Species | Rat |
| Route of exposure | Oral |
| Test | LD50 |
| Result | 30000 mg/kg |
| Other information | |

| | |
|---|---|
| Product/substance | Nickel |
| Test method | |
| Species | Rat |
| Route of exposure | Oral |
| Test | LC50 |
| Result | >5000 mg/kg |
| Other information | |

#### Skin corrosion/irritation

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

#### Serious eye damage/irritation

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

#### Respiratory sensitisation

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

#### Skin sensitisation

May cause an allergic skin reaction.

#### Germ cell mutagenicity

Suspected of causing genetic defects.

#### Carcinogenicity

May cause cancer.

#### Reproductive toxicity

May damage fertility.

#### STOT-single exposure

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

#### STOT-repeated exposure

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

#### Aspiration hazard

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

#### Long term effects

Carcinogenic effects: This product contains substances considered or proven to be carcinogenic. The carcinogenic effects may be triggered subsequent to exposure through inhalation, skin contact or ingestion.

### Other information

Cobalt has been classified by IARC as a group 2B / 2A (Cobalt metal with tungsten carbide) carcinogen.
Chromium has been classified by IARC as a group 1 carcinogen.
Nickel has been classified by IARC as a group 2B carcinogen.
Exposure to metal dusts and oxides may cause metal fume fever. Metal fume fever is a temporary flu-like condition characterized by chills, fever, muscle aches and pains, nausea, and vomiting. Typically, the symptoms appear within a few hours after exposure and subside within 2-3 days with no permanent effects.

## SECTION 12: Ecological information

### 12.1. Toxicity

| | |
|---|---|
| Product/substance | Cobalt |
| Test method | |
| Species | Fish, Brachydanio rerio |
| Compartment | |
| Duration | 96 hours |
| Test | |
| Result | >100 mg/L |
| Other information | |

| | |
|---|---|
| Product/substance | Cobalt |
| Test method | |
| Species | Daphnia, Daphnia magna |
| Compartment | |
| Duration | 48 hours |
| Test | |
| Result | 3.2 mg/L |
| Other information | |

| | |
|---|---|
| Product/substance | Cobalt |
| Test method | |
| Species | Algae, Selenastrum capricornutum |
| Compartment | |
| Duration | 72 hours |
| Test | |
| Result | 0.05 - 0.26 mg/L |
| Other information | |

| | |
|---|---|
| Product/substance | Iron |
| Test method | |
| Species | Fish |
| Compartment | |
| Duration | 96 hours |
| Test | LC50 |
| Result | 13.6 mg/L |
| Other information | |

| | |
|---|---|
| Product/substance | Nickel |
| Test method | |
| Species | Fish, Oncorhynchus mykiss |
| Compartment | |
| Duration | 96 hours |
| Test | LC50 |
| Result | 31.7 mg/L |
| Other information | |

| | |
|---|---|
| Product/substance | Nickel |
| Test method | |
| Species | Fish, Pimephales promelas |
| Compartment | |
| Duration | 96 hours |
| Test | LC50 |
| Result | 3.1 mg/L |
| Other information | |

| | |
|---|---|
| Product/substance | Nickel |
| Test method | |
| Species | Fish, Brachydanio rerio |
| Compartment | |
| Duration | 96 hours |
| Test | LC50 |
| Result | >100 mg/L |
| Other information | |

| | |
|---|---|
| Product/substance | Nickel |
| Test method | |
| Species | Algae, Selenastrum capricornutum |
| Compartment | |
| Duration | 72 hours |
| Test | EC50 |
| Result | 0.18 mg/L |
| Other information | |

| | |
|---|---|
| Product/substance | Nickel |
| Test method | |
| Species | Daphnia |
| Compartment | |
| Duration | 96 hours |
| Test | EC50 |
| Result | 510 µg/L |
| Other information | |

### 12.2. Persistence and degradability
No data available.

### 12.3. Bioaccumulative potential
No data available.

### 12.4. Mobility in soil
No data available.

### 12.5. Results of PBT and vPvB assessment
This mixture/product does not contain any substances considered to meet the criteria classifying them as PBT and/or vPvB.

### 12.6. Other adverse effects
None known.

## SECTION 13: Disposal considerations

### RCRA Hazardous waste ("P" and "U" list) (40 CFR 261)
None of the components are listed

### Specific labelling
Not applicable.

### Contaminated packing
Packaging containing residues of the product must be disposed of similarly to the product.

## SECTION 14: Transport information

| | 14.1 UN / ID | 14.2 UN proper shipping name | 14.3 Hazard class(es) | 14.4 PG* | 14.5 Env** | Other information |
|---|---|---|---|---|---|---|
| DOT | - | - | - | - | - | - |
| IMDG | - | - | - | - | - | - |
| IATA | - | - | - | - | - | - |

* Packing group
** Environmental hazards

### Additional information
Not dangerous goods according to ADR, IATA and IMDG.

### 14.6. Special precautions for user

Not applicable.

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No data available.

## SECTION 15: Regulatory information

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

### 15.2. U.S. Federal regulations

#### TSCA

Cobalt is listed in the non-confidential portion
Chromium is listed in the non-confidential portion
Molybdenum is listed in the non-confidential portion
Iron is listed in the non-confidential portion
Nickel is listed in the non-confidential portion

#### Clean Air Act

Cobalt is regulated as a hazardous air pollutant (HAPS)
Chromium is regulated as a hazardous air pollutant (HAPS)
Nickel is regulated as a hazardous air pollutant (HAPS)

#### EPCRA Section 302

None of the components are listed

#### EPCRA Section 304

None of the components are listed

#### EPCRA section 313

Cobalt is listed
Chromium is listed
Nickel is listed

#### CERCLA

Chromium is regulated with a Reportable Quantity (RQ) of: 5000 pounds
Nickel is regulated with a Reportable Quantity (RQ) of: 100 pounds

### State regulations

#### California / Prop. 65

Cobalt is known to cause: Cancer

Nickel is known to cause: Cancer

#### Massachusetts / Right To Know Act

Cobalt is listed
Chromium is listed
Molybdenum is listed
Nickel is listed

#### New Jersey / Right To Know Act

Cobalt / Substance number: 0520
Cobalt is on the Special Health Hazard Substance List

Chromium / Substance number: 0432
Chromium is on the Special Health Hazard Substance List

Molybdenum / Substance number: 1309

Nickel / Substance number: 1341
Nickel is on the Special Health Hazard Substance List

#### New York / Right To Know Act

Cobalt is listed
Cobalt is regulated with a Treshold Reporting Quantity (TRQ) of: 10 pounds

Chromium is listed
Chromium is regulated with a Reportable Quantity (RQ) of: 5000* pounds
Chromium is regulated with a Treshold Reporting Quantity (TRQ) of: 0 pounds

Molybdenum is listed
Molybdenum is regulated with a Treshold Reporting Quantity (TRQ) of: 100 pounds

Nickel is listed
Nickel is regulated with a Reportable Quantity (RQ) of: 100 pounds
Nickel is regulated with a Treshold Reporting Quantity (TRQ) of: 0 pounds

Pennsylvania / Right To Know Act

Cobalt is listed
Cobalt is hazardous to the environment (E)

Chromium is listed
Chromium is a special hazardous substance (S)
Chromium is hazardous to the environment (E)

Molybdenum is listed

Nickel is listed
Nickel is a special hazardous substance (S)
Nickel is hazardous to the environment (E)

### 15.4. Restrictions for application

Restricted to professional users.
Pregnant women and women breastfeeding must not be exposed to this product. The risk, and possible technical precautions or design of the workplace needed to eliminate exposure, must be considered.

### 15.5. Demands for specific education

No specific requirements.

### 15.6. Additional information

Not applicable.

### 15.7. Chemical safety assessment

No

### 15.8. Sources

OSHA Hazard Communication Standard (29 CFR 1910.1200)

## SECTION 16: Other information

### Full text of H-phrases as mentioned in section 3

H317, May cause an allergic skin reaction.
H334, May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341, Suspected of causing genetic defects.
H350, May cause cancer.
H351, Suspected of causing cancer.
H360F, May damage fertility.
H372, Causes damage to organs through prolonged or repeated exposure.

### The full text of identified uses as mentioned in section 1

None known.

### Abbreviations and acronyms

ACGIH = American Conference of Governmental Industrial Hygienists
ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS = Chemical Abstracts Service
CERCLA = Comprehensive Environmental Response Compensation and Liability Act
EINECS = European Inventory of Existing Commercial chemical Substances
EPCRA = Emergency Planning and Community Right-To-Know Act
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HCIS = Hazardous Chemical Information System
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
NFPA = National Fire Protection Association

NIOSH = National Institute for Occupational Safety and Health
OECD = Organisation for Economic Co-operation and Development
OSHA = Occupational Safety and Health Administration
PBT = Persistent, Bioaccumulative and Toxic
RCRA = Resource Conservation and Recovery Act
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SARA = Superfund Amendments and Reauthorization Act
SCL = A specific concentration limit.
STEL = Short-term exposure limits
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
STOT-SE = Specific Target Organ Toxicity - Single Exposure
TSCA = The Toxic Substances Control Act
TWA = Time weighted average
UN = United Nations
UVBC = Unknown or variable composition, complex reaction products or of biological materials
VOC = Volatile Organic Compound
vPvB = Very Persistent and Very Bioaccumulative

### Additional information

The classification of the mixture in regard of health hazards are in accordance with the calculation methods given by HCS (29 CFR 1910.1200).

### ▼The safety data sheet is validated by

EcoOnline

### Other

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a blue triangle.
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.
It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.
Country-language: US-en