Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.07.2021 Revision: 14.07.2021

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

· **1.1 Product identifier**

· **Trade name: Cobalt carbonyl (Dicobalt octacarbonyl) (Stabilized with 1-5% hexanes)**

· **Item number:** 27-0400
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Strem Chemicals, Inc.
7 Mulliken Way
NEWBURYPORT, MA 01950
USA
info@strem.com

· **Further information obtainable from:** Technical Department
· **1.4 Emergency telephone number:**
EMERGENCY: CHEMTREC: + 1 (800) 424-9300
During normal opening times: +1 (978) 499-1600

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**

GHS02 flame

Self-heat. 1 H251 Self-heating: may catch fire.

GHS08 health hazard

Carc. 2 H351 Suspected of causing cancer.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H332 Harmful if inhaled.
Skin Sens. 1 H317 May cause an allergic skin reaction.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**

GHS02 GHS07 GHS08

· **Signal word** Danger

(Contd. on page 2)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.07.2021 Revision: 14.07.2021

Trade name: Cobalt carbonyl (Dicobalt octacarbonyl) (Stabilized with 1-5% hexanes)

(Contd. of page 1)

· **Hazard-determining components of labelling:**
octacarbonyldicobalt
· **Hazard statements**
H251 Self-heating: may catch fire.
H302+H332 Harmful if swallowed or if inhaled.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
· **Precautionary statements**
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read label before use.
P231 Handle under inert gas.
P284 [In case of inadequate ventilation] wear respiratory protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P422 Store contents under inert gas.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**		
CAS: 10210-68-1 EINECS: 233-514-0	octacarbonyldicobalt Flam. Sol. 1, H228; Self-heat. 1, H251; Acute Tox. 1, H330; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H302; Skin Sens. 1, H317	95.0%
CAS: 73513-42-5	hexane Flam. Liq. 2, H225	5.0%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Call for a doctor immediately.

(Contd. on page 3)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.07.2021 Revision: 14.07.2021

Trade name: Cobalt carbonyl (Dicobalt octacarbonyl) (Stabilized with 1-5% hexanes)

(Contd. of page 2)

· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
· **5.2 Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **5.3 Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **6.2 Environmental precautions:** No special measures required.
· **6.3 Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.

· **Handling:** Handle under inert gas.
· **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Keep respiratory protective device available.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
Keep cool.
Store contents under inert gas.
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep container tightly sealed.
· **Recommended storage temperature:** Store at temperatures not exceeding -18 °C. Keep cool.
· **7.3 Specific end use(s)** No further relevant information available.

(Contd. on page 4)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.07.2021 *Revision: 14.07.2021*

Trade name: Cobalt carbonyl (Dicobalt octacarbonyl) (Stabilized with 1-5% hexanes)

(Contd. of page 3)

SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
10210-68-1 octacarbonyldicobalt	
WEL	Long-term value: 0.1 mg/m³ as Co; Carc, Sen

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
· **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Crystalline
Colour:	Dark orange colour
· **Odour:**	Acetone-like
· **Odour threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/freezing point:	51 °C

(Contd. on page 5)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.07.2021 Revision: 14.07.2021

Trade name: Cobalt carbonyl (Dicobalt octacarbonyl) (Stabilized with 1-5% hexanes)

(Contd. of page 4)

Initial boiling point and boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gas):**	Flammable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto-ignition temperature:**	Product is not selfigniting.
· **Explosive properties:**	Not determined.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapour pressure at 20 °C:**	1 hPa
· **Density at 20 °C:**	1.73 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with water:**	Insoluble.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
Organic solvents:	0.0 %
VOC (EC)	0.00 %
Solids content:	100.0 %
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions** No dangerous reactions known.
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity**
Harmful if swallowed or if inhaled.

(Contd. on page 6)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.07.2021 Revision: 14.07.2021

Trade name: Cobalt carbonyl (Dicobalt octacarbonyl) (Stabilized with 1-5% hexanes)

(Contd. of page 5)

· **LD/LC50 values relevant for classification:**

10210-68-1 octacarbonyldicobalt

Oral	LD50	754 mg/kg (rat)
Inhalative	LC50/4 h	0.02 mg/l (mouse)

· **Primary irritant effect:**
· **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 or skin sensitisation**
May cause an allergic skin reaction.
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity**
Suspected of causing cancer.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure**
May cause damage to organs through prolonged or repeated exposure.
· **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:** Not known to be hazardous to water.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**
· **ADR, IMDG, IATA** UN3190

· **14.2 UN proper shipping name**
· **ADR** 3190 SELF-HEATING SOLID, INORGANIC, N.O.S.
· **IMDG, IATA** SELF-HEATING SOLID, INORGANIC, N.O.S.

(Contd. on page 7)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.07.2021 Revision: 14.07.2021

Trade name: Cobalt carbonyl (Dicobalt octacarbonyl) (Stabilized with 1-5% hexanes)

(Contd. of page 6)

· **14.3 Transport hazard class(es)**

· **ADR**

· **Class**	4
· **Label**	4.2

· **IMDG, IATA**

· **Class**	4.2 Substances liable to spontaneous combustion.
· **Label**	4.2
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	II
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No
· **14.6 Special precautions for user**	Not applicable.
· **EMS Number:**	F-A,S-J
· **Stowage Category**	E
· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	0
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· **IMDG**	
· **Limited quantities (LQ)**	0
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· **UN "Model Regulation":**	UN 3190 SELF-HEATING SOLID, INORGANIC, N.O.S., 4.2, II

SECTION 15: Regulatory information

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

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

(Contd. on page 8)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.07.2021 *Revision: 14.07.2021*

Trade name: Cobalt carbonyl (Dicobalt octacarbonyl) (Stabilized with 1-5% hexanes)

(Contd. of page 7)

· ***15.2 Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· ***Relevant phrases***
H225 Highly flammable liquid and vapour.
H228 Flammable solid.
H251 Self-heating: may catch fire.
H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H330 Fatal if inhaled.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.

· ***Department issuing SDS:*** *Technical Department.*
· ***Contact:*** *Technical Director*
· ***Abbreviations and acronyms:***
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Flam. Sol. 1: Flammable solids – Category 1
Self-heat. 1: Self-heating substances and mixtures – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 1: Acute toxicity – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
Carc. 2: Carcinogenicity – Category 2
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2