SECTION 1. IDENTIFICATION

Product Name: Cobalt Carbonyl

Product Number: All applicable American Elements product codes, e.g. CO-CBL-01-C 01

CAS #: 10210-68-1

Relevant identified uses of the substance: Scientific research and development

Supplier details:
American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351

Emergency telephone number:
+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Self-heating substances and mixtures (Category 1), H251
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 1), H330
Skin irritation (Category 2), H315
Skin sensitisation (Category 1), H317
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure, Oral (Category 2), Nervous system, H373
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

2.2 GHS Label elements, including precautionary statements

Pictogram
Signal word Danger
Hazard statement(s)
H251 Self-heating: may catch fire.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H330 Fatal if inhaled.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs (Nervous system) through prolonged or repeated exposure if swallowed.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P235 + P410 Keep cool. Protect from sunlight.
P260 Do not breathe dust/ fume/ gas/ mist/ Vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 Wear respiratory protection.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 IF skin irritation or rash occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P407 Maintain air gap between stacks/ pallets.
P413 Store bulk masses greater than .? kg/ .? lbs at temperatures not exceeding .? °C/ .? °F.
P420 Store away from other materials.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures
Synonyms : Dicobalt octacarbonyl
Formula : C8Co2O8
Molecular weight : 341.95 g/mol
Hazardous components
Component Classification Concentration
Octacarbonyldicobalt
CAS-No.
EC-No.
10210-68-1
SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
In case of eye contact
Flush eyes with water as a precaution.
If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Cobalt/cobalt oxides

5.3 Advice for firefighters
SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear self-contained breathing apparatus for firefighting if necessary.
Use water spray to cool unopened containers.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature 2 - 8 °C
Air sensitive. Handle and store under inert gas.
Storage class (TRGS 510): Pyrophoric and self-heating hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Components with workplace control parameters
Component CAS-No. Value Control parameters
Basis
Octacarboxyldicobalt
t
10210-68-1 TWA 0.100000 mg/m3
USA. ACGIH Threshold Limit Values (TLV)
Remarks Pulmonary edema
Spleen damage
TWA 0.100000 mg/m3
USA. NIOSH Recommended Exposure Limits
TWA 0.1 mg/m3 USA. ACGIH Threshold Limit Values (TLV)
Pulmonary edema
Spleen damage
TWA 0.1 mg/m3 USA. NIOSH Recommended Exposure Limits
n-Hexane 110-54-3 TWA 50.000000 ppm
USA. ACGIH Threshold Limit Values (TLV)
Central Nervous System impairment
Eye irritation
Peripheral neuropathy
Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
Danger of cutaneous absorption
TWA 50.000000 ppm
180.000000 mg/m3
USA. NIOSH Recommended Exposure Limits
TWA 500.000000 ppm
1,800.000000 mg/m3
USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
The value in mg/m3 is approximate.
TWA 50 ppm
USA. ACGIH Threshold Limit Values (TLV)
Central Nervous System impairment
Eye irritation
Peripheral neuropathy
Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
Danger of cutaneous absorption
TWA 50 ppm
180 mg/m3
USA. NIOSH Recommended
Exposure Limits
TWA 500 ppm
1,800 mg/m³
USA. Occupational Exposure Limits
(OSHA) - Table Z-1 Limits for Air
Contaminants
The value in mg/m³ is approximate.
TWA 50 ppm
180 mg/m³
USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Biological occupational exposure limits
Component CAS-No. Parameters Value Biological specimen
Basis
n-Hexane 110-54-3 2,5-
Hexanedione
0.4 mg/l Urine ACGIH - Biological Exposure Indices
(BEI)
Remarks End of shift at end of workweek
8.2 Exposure controls
Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
Personal protective equipment
Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)
data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method:
EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It
should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
a) Appearance Form: crystalline
   Colour: dark red
b) Odor No data available
c) Odor Threshold No data available
d) pH No data available
e) Melting point/freezing point
   No data available
f) Initial boiling point and boiling range
   No data available
g) Flash point -23 °C (-9 °F)
h) Evaporation rate No data available
i) Flammability (solid, gas) No data available
j) Upper/lower flammability or explosive limits
   No data available
k) Vapor pressure No data available
l) Vapor density No data available
m) Relative density No data available
n) Water solubility No data available
o) Partition coefficient: noctanol/water
   No data available
p) Auto-ignition temperature
   No data available
q) Decomposition temperature
   No data available
r) Viscosity No data available
s) Explosive properties No data available
t) Oxidizing properties No data available
9.2 Other safety information
No data available

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available
10.2 Chemical stability
Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions
No data available
10.4 Conditions to avoid
No data available
10.5 Incompatible materials
Oxidizing agents
10.6 Hazardous decomposition products
Other decomposition products - No data available

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity
No data available
Inhalation: No data available
Dermal: No data available
No data available
Skin corrosion/irritation
No data available
Serious eye damage/eye irritation
No data available
Respiratory or skin sensitisation
No data available
Germ cell mutagenicity
No data available
Carcinogenicity
IARC: 2B - Group 2B: Possibly carcinogenic to humans (Octacarbonyldicobalt)
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity
No data available
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available
Additional Information
Central nervous system depression, Lung irritation, chest pain, pulmonary edema, giddiness, slowed reaction time, slurred speech, Headache, Dizziness, Drowsiness, Unconsciousness
Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence (Octacarbonyldicobalt)

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available
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
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Contaminated packaging Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT (US)
UN number: 3190 Class: 4.2 Packing group: II
Proper shipping name: Self-heating solid, inorganic, n.o.s. (Octacarbonyldicobalt)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3190 Class: 4.2 Packing group: II EMS-No: F-A, S-J
Proper shipping name: SELF-HEATING SOLID, INORGANIC, N.O.S. (Octacarbonyldicobalt)

IATA
UN number: 3190 Class: 4.2 Packing group: II
Proper shipping name: Self-heating solid, inorganic, n.o.s. (Octacarbonyldicobalt)

SECTION 15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:
Octacarbonyldicobalt
CAS-No. 10210-68-1
Revision Date 1994-04-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:
n-Hexane
CAS-No. 110-54-3
Revision Date 2007-07-01
Octacarbonyldicobalt 10210-68-1 1994-04-01
SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
Octacarbonyldicobalt
CAS-No. 10210-68-1
Revision Date 1994-04-01
n-Hexane 110-54-3 2007-07-01

Pennsylvania Right To Know Components
Octacarbonyldicobalt
CAS-No. 10210-68-1
Revision Date 1994-04-01
n-Hexane 110-54-3 2007-07-01

New Jersey Right To Know Components
Octacarbonyldicobalt
CAS-No. 10210-68-1
Revision Date 1994-04-01
n-Hexane 110-54-3 2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth
defects, or any other
reproductive harm.

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is
believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The