

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: COBALT CARBONATE
PRODUCT CODE: 100077

COMPANY IDENTIFICATION:

FREEPORT-McMORAN CORPORATION
333 NORTH CENTRAL AVENUE
PHOENIX, ARIZONA 85004
PHONE: (602)366-8100
FAX: (602)366-7309

DATE REVISED: 08/09/2013

DATE PRINTED: 10/07/2013

CHEMICAL FAMILY/USE: Inorganic salt

IN CASE OF EMERGENCY CONTACT:

CHEMTREC: 800-424-9300

HMIS:

HEALTH: 1*
FLAMMABILITY: 0
REACTIVITY: 0
PERSONAL PROTECTION: E

*Chronic health hazard

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Pink powder. May cause sensitization by skin contact which may produce allergic contact dermatitis. May cause sensitization by inhalation which may produce occupational asthma. May cause cancer by inhalation. Suspected of causing genetic defects. May damage fertility.

EYE CONTACT: May cause eye irritation.

SKIN CONTACT: May cause allergic contact dermatitis if there is prior sensitization. Most rashes associated with cobalt occur on the hands and appear within the first year of occupational exposure to cobalt.

INHALATION: May cause cancer by inhalation. Cobalt is a known allergen that produces characteristic symptoms of asthma, such as wheezing, dry cough, and labored breathing. Usually the asthma symptoms appear 4-6 hours after exposure and often worsen again later in the same day. Even later asthma reactions to inhaled cobalt may occur up to 48 hours after exposure. Improvement typically occurs when cobalt exposure ceases, e.g. weekends, vacations. Other cobalt-containing compounds such as hard metal dust, but not cobalt powder itself, are associated with subacute fibrosis alveolitis and chronic diffuse interstitial pulmonary fibrosis.

INGESTION: May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME:	PERCENT:	ACGIH TLV:	ACGIH STEL:	OSHA PEL:	OSHA STEL:	Units that the TWAs and STELs are in:
Cobalt carbonate 513-79-1	100	0.02	NE	0.1+	NE	mg/m ³

+For metal dust and fume, as Co

4. FIRST AID MEASURES

EYES:

Flush immediately with large amounts of water and continue flushing for 15 minutes or until irritation subsides, whichever is longer.

SKIN:

Remove victim from contaminated area. Wash immediately and thoroughly with soap or mild detergent and water. Remove and isolate contaminated clothing, jewelry, and shoes. Gently brush away excess solid contaminate. Consult a physician if irritation persists.

INHALATION:

Remove from exposure. Provide ventilation assistance and oxygen as indicated. Physicians should administer usual asthma medications for acute attacks.

INGESTION:

Give large amounts of water to drink if person is completely conscious. Get medical attention as a precaution.

MEDICAL CONDITIONS AGGRAVATED:

Individuals already sensitized to cobalt are at greater risk for asthma attacks. Risk factors for severe eczema include not only prior cobalt sensitization, but also prior nickel sensitization and irritant dermatitis. The sensitization to cobalt and nickel results from co-exposure rather than cross-reactivity.

NOTE TO PHYSICIAN:

Toxic concentrations of cobalt in urine and blood are not well defined. In the general population, the 95th percentile for cobalt concentration was 8.3 ug/l in urine (National Health and Nutrition Examination Survey III). Chelation treatments, for example, calcium disodium edetate or dimercaprol, are controversial. Contact a poison control center for current recommendations. Individuals with polymorphism in the HLA-DP gene (presence of glutamate 69 in the beta chain) may be more susceptible to cobalt toxicity.

5. FIRE FIGHTING MEASURES

FLASH POINT (° F)

Not Applicable

OSHA FLAMMABILITY CLASSIFICATION:

Not Applicable

EXTINGUISHING MEDIA:

Dry chemical, carbon dioxide, water.

SPECIAL FIREFIGHTING PROCEDURES:

Wear self-contained breathing apparatus, when large quantities are involved.

EXPLOSION LIMITS IN AIR - LOWER (%)

Unknown

EXPLOSION LIMITS IN AIR - UPPER (%)

Unknown

AUTOIGNITION TEMP (° F)

Unknown

UNUSUAL FIRE AND EXPLOSION HAZARDS:

High concentrations of dust may present a dust explosion hazard. Fine metal and metal oxide dust may occur during a fire.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

The spill should first be contained and the area should be cleaned by wet-sweeping or vacuum cleaning (HEPA filter). Minimize the creation of dust. Approved NIOSH respirator for dust should be worn.

7. HANDLING AND STORAGE

OMG Americas, Inc.

COBALT CARBONATE

PRODUCT CODE: 100077

HANDLING:

Avoid contact with skin and eyes. Avoid breathing dust. Use only with adequate ventilation. Always use gloves and safety glasses when opening/emptying containers or processing this material. Do not eat or drink in work area. Wash in soap and water after exposure to any dust.

STORAGE:

Store in a cool, dry area in closed containers. Avoid generating dust.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Localized ventilation should be used to control dust levels. Proper ventilation should be installed in order to maintain cobalt dust concentration in the air below the occupational exposure limits.

RESPIRATORY PROTECTION EQUIPMENT:

Dust masks (suitable for sub-micron particles). Use NIOSH approved respiratory protection where airborne level exceeds appropriate occupational exposure limit.

PROTECTIVE GLOVES:

Rubber gloves. Gloves, rubber or impervious coating.

EYE AND FACE PROTECTION:

Wear safety glasses or face shields in processes which scatter particles into the air. Wear safety glasses or face shield in operations that do scatter fine particles in the air.

OTHER PROTECTIVE EQUIPMENT:

Coveralls are satisfactory to minimize skin contact. Coveralls should be used preferably for only one day if exposed to dust. Eye wash equipment. To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

VENTILATION:

Adequate ventilation should be provided to keep dust concentrations below acceptable exposure limits. Discharge from the ventilation system should comply with the applicable air pollution control regulations. Eliminate ignition sources. Use local exhaust ventilation directed towards the source of dust and which is adequate to limit personal exposure to levels which do not exceed the PEL or TLV. If such equipment is not available use respirators as specified above.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Range/Point	Unknown
Vapor Pressure	Unknown
Vapor Density (AIR=1)	Unknown
Freezing Point	Unknown
Melting Point	Unknown
Physical State	Powder
Color	Pink
% Volatile by Weight	Unknown
% Volatile by Volume	Unknown
Evaporation Rate (Butyl Acetate=1)	Unknown
Specific Gravity @ 25°C	0.36
Weight per gallon	3 lbs.

10. STABILITY AND REACTIVITY

STABILITY:

Stable.

HAZARDOUS POLYMERIZATION:

Will not occur.

HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS:

Toxic fumes of cobalt oxide and nickel oxide.

INCOMPATIBILITY (MATERIALS TO AVOID):

Contact with acids can cause foaming.

CONDITIONS TO AVOID:

Avoid dust generation.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

Cobalt compounds with similar water solubility have been shown to cause cancer by inhalation. Tumours were observed in both rats and mice of both sexes at concentrations of 0.3 mg/m³ of Cobalt Sulfate hexahydrate. ACGIH has given Cobalt and Cobalt Inorganic Compounds a rating of A3, animal carcinogen. They state that available epidemiologic studies do not confirm an increased risk of cancer in exposed humans.

Some evidence of genetic defects exists for similar cobalt compounds. Positive results have been observed in a range of different test systems including mutations in bacteria and mammalian cells, chromosomal aberrations, micronuclei, DNA damage and transformation in mammalian cells. However, negative results have also been observed.

There is evidence that similar cobalt compounds can damage fertility.

Workers with occupational asthma arising from cobalt powder are sensitized as may be demonstrated by a positive bronchoprovocation challenge test with cobalt chloride. However, this test is not widely available and should only be performed by physicians experienced in the procedure. This latter test is not widely available. Cobalt-related asthma may include early, late and dual reactions. The late reaction may appear up to 48 hours after exposure. Improvement typically occurs with cessation of exposure, such as weekends and vacations. Patch test and intradermal skin tests do not discriminate patients with cobalt-related asthma from controls in the general population.

Cobalt-induced allergic contact dermatitis is characterized by erythematous papules occurring commonly on the hands. The prevalence of this condition in the workplace may be 10-15%. Most cobalt-related rashes begin in the first year of employment where cobalt is used. Risk factors include prior nickel sensitization and irritant dermatitis. 25% of nickel-sensitive individuals develop cobalt allergy compared with 5% of the general population. Sensitization to nickel and cobalt result from co-exposure rather than cross-reactivity. The diagnosis of cobalt sensitivity may be made by patch testing. However, the diagnosis of cobalt sensitivity is complicated by the fact that nickel contamination of cobalt patch tests may produce false positive skin tests for cobalt in patients who are highly sensitive to nickel.

ACUTE ORAL LD50

LD50/oral/rat = 697 mg/kg

ACUTE DERMAL LD50:

LD50/dermal = >2,000 mg/kg

ACUTE INHALATION LC50:

No data at this time.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

Aquatic Toxicity:

Very toxic to aquatic life. By analogy to similar materials:

Cobalt Chloride:

Fish: LC50= 1.5 µg/l (Fresh Water)

Aquatic invertebrates: LC50= 0.61 mg/l (Fresh Water); 2.32 mg/l (Sea Water)

Algae: LC50= 144 µg/l (Fresh Water); 24.1 µ/l (Sea Water)

EC10 (Fresh Water Fish) = 351.4 mg/l

NOEC Aquatic invertebrates= 5.47 µg/l (Fresh Water); 206 µg/l (Sea water)

NOEC Algae= 4.9 µg/l (Fresh water); 1.23 µg/l (Sea water)

CHEMICAL FATE INFORMATION:

No data at this time.

BIOACCUMULATIVE POTENTIAL:

Cobalt:

Aquatic plants: Bioconcentration factor (BCF): >100-5000

Aquatic invertebrates: BCF <300

Fresh water, Fish: BCF/BAF <10

Marine fish: BCF/BAF <10

The substance has a low potential for bioaccumulation.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD:

Disposal should be made in accordance with federal, state and local regulations. Cobalt spills can be swept up and, if uncontaminated, re-used. Cobalt can be recycled and consideration of this route should be given. This product is not regulated as a hazardous waste under RCRA but may be regulated in certain states. Dispose of in accordance with Federal, State and Local laws.

14. TRANSPORT INFORMATION

DOT SHIPPING NAME: Environmentally Hazardous Substance, Solid, NOS (contains Cobalt Carbonate) Marine Pollutant
DOT HAZARD CLASS: 9
UN/NA NUMBER: UN3077
DOT PACKING GROUP: III

EXCEPTION: 172.102 (c) Special Provision 146: This material may be shipped as a Class 9, Environmentally Hazardous Substance because it has been designated as such by the European authority, IATA and IMDG. However, ground shipments may be classified as non-hazardous as they do not meet the definition of a Hazardous Material or Hazardous substance under 49 CFR 100 to 185.

AIR TRANSPORTATION: Environmentally Hazardous Substance, Solid, NOS (contains Cobalt Carbonate), 9, UN3077, III

OCEAN TRANSPORTATION: Environmentally Hazardous Substance, Solid, NOS (contains Cobalt Carbonate), 9, UN3077, III Marine Pollutant

15. REGULATORY INFORMATION

TSCA STATUS:

All components of this product are on the US TSCA Inventory.

TSCA 12(b) EXPORT NOTIFICATION:

No components of this product are subject to TSCA 12(b) export notification requirements.

CALIFORNIA PROPOSITION 65:

This material contains the following chemicals in trace amounts (less than 0.1%) which are known to the State of California to cause cancer or birth defects and are subject to the requirements of California Proposition 65:

Nickel Carbonate (3333-67-3) Cancer

SARA 302 EXTREMELY HAZARDOUS SUBSTANCE LIST:

This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substance List.

CLEAN AIR ACT S112 HAZARDOUS AIR POLLUTANTS:

Cobalt Compounds. Nickel Compounds.

SARA (311, 312) HAZARD CLASS:

Acute health hazard. Chronic health hazard.

SARA SECTION 313 TOXIC CHEMICALS:

Cobalt Compounds >99%

AUSTRALIAN INVENTORY CHEMICAL SUBSTANCES:

All components are listed on the Australian Core Inventory of Chemical Substances (ACOIN).

CANADIAN INVENTORY:

All components are on the Domestic Substance List (DSL).

EINECS REGULATIONS:

All components are on the European Inventory of Existing Commercial Chemical Substances (EINECS).

JAPAN:

All components are listed on the Japanese Existing and New Chemical Substances (ENCS).

KOREAN CHEMICAL INVENTORY:

All components are on the Korean List of Existing Chemical Substances.

PHILIPPINE INVENTORY:

All components are listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS).

CHINESE INVENTORY:

All components are listed on the Chinese Inventory of Existing Chemical Substances.

16. OTHER INFORMATION

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

The information in this document is believed to be correct as of the date issued. However, no warranty of merchantability, fitness for any particular purpose, or any other warranty is expressed or is to be implied regarding the accuracy or completeness of this information, the results to be obtained from the use of this information or the product, the safety of this product, or the hazards related to its use. This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof.

17. LABEL INFORMATION**SIGNAL WORD:** CAUTION**TARGET ORGANS:**

May cause sensitization by skin contact which may produce allergic contact dermatitis. May cause sensitization by inhalation which may produce occupational asthma. May cause eye and respiratory irritation. Suspected of causing genetic defects. May damage fertility. May cause cancer by inhalation.

EYES:

Flush immediately with large amounts of water and continue flushing for 15 minutes or until irritation subsides, whichever is longer.

SKIN:

Remove victim from contaminated area. Wash immediately and thoroughly with soap or mild detergent and water. Remove and isolate contaminated clothing, jewelry, and shoes. Gently brush away excess solid contaminate. Consult a physician if irritation persists.

INHALATION:

Remove from exposure. Provide ventilation assistance and oxygen as indicated. Physicians should administer usual asthma medications for acute attacks.

INGESTION:

Give large amounts of water to drink if person is completely conscious. Get medical attention as a precaution.

HANDLING:

Avoid contact with skin and eyes. Avoid breathing the dust. Use with adequate ventilation. Always use an approved respirator for dust, gloves and safety glasses when opening/emptying containers or processing this material. Do not eat or drink in work area. Wash in soap and water after exposure to any dust.

STORAGE:

Store in a cool, dry area in closed containers. Avoid generating dust.

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

The spill should first be contained and the area should be cleaned by wet-sweeping or vacuum cleaning (HEPA filter). Minimize the creation of dust. Approved NIOSH respirator for dust should be worn.

EXTINGUISHING MEDIA:

Dry chemical, carbon dioxide, water.