

GHS Classification

ID119

Cobalt

CAS 7440-48-4

Date Classified: May 24, 2006 (Environmental Hazards: Mar. 31, 2006)

Physical Hazards

Reference Manual: GHS Classification Manual (Feb. 10, 2006)

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Explosives	Not applicable	-	-	-	Containing no chemical groups with explosive properties
2 Flammable gases	Not applicable	-	-	-	Classified as "solid" according to GHS definition
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Classified as "solid" according to GHS definition
5 Gases under pressure	Not applicable	-	-	-	Classified as "solid" according to GHS definition
6 Flammable liquids	Not applicable	-	-	-	Classified as "solid" according to GHS definition
7 Flammable solids	Classification not possible	-	-	-	Classification not possible, because of the unidentified configuration and the absence of data. The powder or granules, when mixed with the air, may cause dust explosion (ICSC (2004)). Metal powder including but not limited to cobalt (Non-flammables, and excluding those with specific product names) is classified into Category 4.1, Packing Group II and III (UN#3089), by the UN Recommendations on the Transport of Dangerous Goods.
8 Self-reactive substances and mixtures	Not applicable	-	-	-	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not applicable	-	-	-	Classified as "solid" according to GHS definition
10 Pyrophoric solids	Classification not possible	-	-	-	Classification not possible, because of the unidentified configuration and the absence of data. The powder is pyrophoric when in contact with air at ordinary temperatures (ICSC, 2004)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	No data available
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	-	-	-	Stable to water; insoluble (ICSC, 2004)
13 Oxidizing liquids	Not applicable	-	-	-	Classified as "solid" according to GHS definition
14 Oxidizing solids	Not applicable	-	-	-	Inorganic substance containing no oxygen and halogen
15 Organic peroxides	Not applicable	-	-	-	Not organic compounds
16 Corrosive to metals	Classification not possible	-	-	-	Test methods applicable to solid substances are not available

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	-	-	-	Based on the testing data of rat LD50 (oral route) of 6,171mg/kg (RTECS (2004)).
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Due to the fact that the substance is "solid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	Insufficient data available
2 Skin corrosion / irritation	Classification not possible	-	-	-	No data available
3 Serious eye damage / eye irritation	Classification not possible	-	-	-	No data available
4 Respiratory/skin sensitization	Respiratory sensitization: Category 1 Skin sensitization: Category 1	(Respiratory sensitization) Health hazard (Skin sensitization) Exclamation mark	(Respiratory sensitization) Danger (Skin sensitization) Warning	(Respiratory sensitization) May cause allergic or asthmatic symptoms or breathing difficulties if inhaled (Skin sensitization) May cause allergic skin reaction	Respiratory sensitization: based on the classification by the Japan Society for Occupational Health and the Japanese Society of Occupational Allergy (Respiratory Tract Sensitizing Substance). Skin sensitization: based on the classification by the Japan Society for Occupational Health and the Japanese Society of Occupational Allergy (Skin Sensitizing Substance).
5 Germ cell mutagenicity	Classification not possible	-	-	-	Insufficient data available
6 Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer	Due to the fact that the substance is classified as Category A3 (as cobalt and inorganic compounds) by ACGIH (2001), Group 2B (cobalt and cobalt compounds) by IARC (1991) and Category 1 (as cobalt and cobalt compounds) by the Japan Society for Occupational Health.
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the description in IARC 52 (1991) and ATSDR (2004); histological changes of testes and reduction in survival rates of offspring are observed, though no descriptions are available regarding the general conditions of parental animals.
8 Specific target organs/systemic toxicity following single exposure	Category 3 (respiratory tract irritation)	Exclamation mark	Warning	(Respiratory tract irritation) May cause respiratory irritation	Based on the human evidence including "respiratory irritation" (ATSDR (2004)).

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (respiratory organs)	Based on the human evidence including "respiratory irritation, stridor, asthma, pneumonia, fibrosis, myocardiosis, functional effects on the cardiac vehicles, cardiac hypertrophy, cardiac failure due to occupational exposure to cobalt" (ATSDR (2004)). The effects are observed in the respiratory organs and heart, while those on the heart are considered secondary effects and hence are not taken into account.
10	Aspiration hazard	Classification not possible	-	-	-	No data available

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Classification not possible	-	-	-	Classification not possible due to lack of data
11 Hazardous to the aquatic environment (chronic)	Category 4	-	-	May cause long lasting harmful effects to aquatic life	Although L(E) C50 <=100 mg/L data existed, since it was metal and the behavior in the water was unknown, it classified into Category 4.