

GHS Classification

ID15

Cadmium oxide

CAS 1306-19-0

Date Classified: Mar. 23, 2006 (Environmental Hazards: Feb. 10, 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 atom 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	Not classified	—	—	—	Non-flammable (ICSC,1999)
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no atom groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
10 Pyrophoric solids	Not classified	—	—	—	Non-combustible (ICSC,1999)
11 Self-heating substances and mixtures	Not classified	—	—	—	Non-combustible (ICSC,1999)
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	—	—	—	Stable to water (water-insoluble ICSC (1999))
13 Oxidizing liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
14 Oxidizing solids	Classification not possible	—	—	—	Classification not possible due to the absence of data, though being inorganic compounds containing oxygen.
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)	Category 3	Skull and crossbones	Danger	Toxic if swallowed	Based on the rat LD50 (oral route) value of 72mg/kg representing the lower of the two testing data, 72-296 mg/kg (CaPSAR, 1994) and 72 mg/kg (CERI Hazard Data 97-17, 1998).
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)	Category 1	Skull and crossbones	Danger	Fatal if inhaled	Based on the lethal dose of 0.011 mg/L calculated from the testing data of human lethal dose (4 hour exposure to cadmium oxide fume) of 0.01mg/L (ACGIH 7th, 2001), 0.012 mg/L (EHC 134, 1992) and 0.011 mg/L (EHC 134, 1992).
2 Skin corrosion / irritation	Classification not possible	—	—	—	Insufficient data available
3 Serious eye damage / eye irritation	Classification not possible	—	—	—	Insufficient data available
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Classification not possible	(Respiratory sensitization)– (Skin sensitization)–	(Respiratory sensitization)– (Skin sensitization)–	(Respiratory sensitization)– (Skin sensitization)–	Respiratory sensitization: No data available Skin sensitization: No data available
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects	Based on the absence of data on heritable mutagenicity tests and germ cell mutagenicity and genotoxicity tests in vivo and positive data on somatic cell mutagenicity tests in vivo (human peripheral blood lymphocyte chromosome tests), described in NTP TOX39 (1995), NTP DB (Access on December 2005) and IARC 58 (1993).
6 Carcinogenicity	Category 1B	Health hazard	Danger	May cause cancer	Due to the fact that the substance is classified as Category A2 (as cadmium and cadmium compounds) by ACGIH (2001).
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the evidence of foetal weight reduction at dosing levels causing general toxicity in rat developmental toxicity tests, described in CERI Hazard Data 97-17 (1998), NTP TOX39 (1995) and IARC 58 (1993).
8 Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory organs)	Health hazard	Danger	Causes damage to organs (respiratory organs)	Based on the human evidence including "pneumonia" (ACGIH (7th, 2001)), "breathing difficulties, cough, myalgia and fever, infiltrative shadows observed in chest X-ray" and "advanced pulmonary fibrosis found 9 years after exposure without improvement in pulmonary function" (ATSDR (1999)) and the evidence from animal studies including "interstitial pneumonia, hyperplasia of alveolar epithelial cells and fibroblasts" (CERI Hazard Data 97-17(1998)), "diffuse alveolitis associated with hemorrhage, edema and monocyte layers" and "breathing difficulties and discolored lungs" (ATSDR, 1999). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1. [Note] The characteristic symptoms of acute toxicity of cadmium compounds are "chemical pneumonia and pulmonary edema through inhalation exposure and acute severe nausea, vomiting and abdominal pain through oral intake" (EHC 134, 1992).

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs, kidneys, bone, heart, hematopoietic system)	Health hazard	Danger	Causes damage to organs (respiratory organs, kidneys, bone tissues, heart, hematopoietic system) through prolonged or repeated exposure	Based on the human evidence including "glomerular filtration dysfunction" (ACGIH 7th, 2001), "decrease in forced vital capacity in high-dose groups" (ATSDR, 1999) and "direct effects on bone metabolism (EHC 134, 1992) and the evidence from animal studies including "injury of myocardial intercalated disc", "neutrophilia, lymphopenia and anemia" (CERI Hazard Data 97-17, 1998), "pulmonary emphysema" (ATSDR, 1999), "necrosis of pulmonary alveoli and surrounding tissues and cell infiltration" and "histopathological changes in lungs, pharynx and nasal cavity of the treated groups" (NTP TOX, 1995). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1. [Note] The characteristic symptoms of chronic toxicity of cadmium compounds are "nephropathy including glomerular proteinuria and the resulting hypercalciuria, unbalanced ratio between calcium and phosphate, decrease in blood phosphate level, nephrolithiasis, osteoporosis and osteomalacia. (EHC 134, 1992).
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)	Category 1	Environment	Warning	Very toxic to aquatic life	It was classified into Category 1 from 72 hours EC50=79microg/L (Cadmium Oxide Equivalent: 90microg/L) of the algae (Green Algae) (EU-RAR, 2003).
11 Hazardous to the aquatic environment (chronic)	Category 1	Environment	Warning	Very toxic to aquatic life with long lasting effects	Although acute toxicity was Category 1 and bio-accumulation was low (BCF=20 (Existing Chemical Safety Inspections Data)), since it was a metallic compound and the underwater action was unknown, it was classified into Category 1.