

## GHS Classification

**ID101**

**Cadmium**

**CAS 7440-43-9**

Date Classified: Mar. 23, 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	-	-	-	There are no chemical groups associated with explosive properties present in the molecules.
2 Flammable gases	Not applicable	-	-	-	Solid (GHS definition)
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Solid (GHS definition)
5 Gases under pressure	Not applicable	-	-	-	Solid (GHS definition)
6 Flammable liquids	Not applicable	-	-	-	Solid (GHS definition)
7 Flammable solids	Classification not possible	-	-	-	Although dust and granular cadmium are known to be combustible (cause dust explosion) (ICSC (J) (1993)), there is no data about other states. So it cannot be classified.
8 Self-reactive substances and mixtures	Not applicable	-	-	-	There are no chemical groups associated with explosive or self-reactive properties present in the molecule.
9 Pyrophoric liquids	Not applicable	-	-	-	Solid (GHS definition)
10 Pyrophoric solids	Not classified	-	-	-	Flash point: 250degC-570degC (>70degC) (ICSC (J), 1993; Hazardous Substance DB, 2nd, 1993)
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	-	-	-	Not cause a serious reaction with water. (Hazardous Substance DB, 2nd, 1993; ICSC(J), 1993)
13 Oxidizing liquids	Not applicable	-	-	-	Solid (GHS definition)
14 Oxidizing solids	Not applicable	-	-	-	Inorganic compounds containing no oxygen and halogen.
15 Organic peroxides	Not applicable	-	-	-	Inorganic substance
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 4	Exclamation mark	Warning	Harmful if swallowed	Category 4 based on SPECIES: Rat; ENDPOINT: LD50;VALUE:1140 mg/kg; (PATTY (2001)
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Solid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: dust, mist)	Category 1	Skull and crossbones	Danger	Fatal if inhaled	Category 1 because of "SPECIES: Rat; ENDPOINT: LC50; VALUE: 0.0031 mg/L "(RTECS (2005)
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: Classification not possible; Skin sensitization: Classification not possible	-	-	-	No data available
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	The substance was classified as Category 2 by the technical guidelines. About half of the results of chromosome aberration tests using somatic cells from people who had epidemiological/occupational exposure are positive (IARC 58 (1993)). And based on EU-Annex1: Muta. Cat. 3 and the note in IARC 58 (1993): "the working group for carcinogenicity evaluation took into account the evidence that ionic cadmium shows genetic toxicity in various eukaryotic cells, including human cells."

6	Carcinogenicity	Category 1A	Health hazard	Danger	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	It was set as Category 1A based on the category of IARC: 1(1993). However, "as cadmium and its compound."
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	There is no description about the general toxicity to parent animals. However, decreases in the number of litter, foetal death, the growth inhibition and malformation of reduction of fetus were observed, and inhibitions of growth and motor activity development in newborn were also observed (IARC 58 (1993) and EHC 134 (1992)). Therefore, according to the technical guide, it was classified into Category 2. In addition, there are existing classifications, such as EU-Annex 1:Repr.Cat.3:R62-63.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (lung, respiratory organs)	Health hazard	Danger	Cause damage to organs (lung, respiratory organs)	The substance was classified as Category 1 (lung, respiratory organs). Based on the reports, such as "when humans are exposed to the fumes generated by heating, they may develop bronchitis, pneumonia, pulmonary edema, etc. and die in some cases" (ACGIH (2001)), and it "causes fatal pulmonary edema in animals after exposure by inhalation in high concentrations" (EHC (J) 134 (1997)).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (kidneys, lung, blood, bone, respiratory organs)	Health hazard	Danger	Causes damage to organs (kidneys, lung, blood, bone, respiratory organs) through prolonged or repeated	Chronic pneumonia, emphysema, proteinuria, etc. are observed in animal experiments (PATTY (5th, 2001)). "Long duration occupational exposure produces the serious chronic effects which is mainly concerned with lungs and kidney to humans. Moreover, the symptoms of osteoporosis or osteomalacia are affected." (EHC(J) 134 (1997)), "Chronic exposures brings humans anemia, eosinophilia, rhinitis, emphysema, and tooth decolorization, and renal disease". (ACGIH (7th, 2001)) "The primary target organ of chronic disorders is the kidney". (PATTY (5th, 2001)) They were classified into Category 1 (renal, lungs, blood, bones, respiratory systems) based on these descriptions.
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	-	-	-	Insufficient data available.
11 Hazardous to the aquatic environment (chronic)	Category 4	-	-	May cause long lasting harmful effects to aquatic life	Classified into Category 4, since it is a metal, behavior in water is unknown.