

## GHS Classification

**ID1039**

**mercury dicyanide**

**CAS 592-04-1**

Date Classified: Nov. 20, 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	-	-	-	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	Not classified	-	-	-	Non-combustible (NFPA, 13th, 2002)
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	-	-	-	Non-combustible (NFPA, 13th, 2002)
11 Self-heating substances and mixtures	Not classified	-	-	-	Non-combustible (NFPA, 13th, 2002)
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	-	-	-	Stable to water (the water solubility is obtained)
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 compound
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 2	Skull and crossbones	Danger	Fatal if swallowed	Category 2 based on SPECIES: Rat; ENDPOINT: LD50; VALUE:26mg/kg; REFERENCE SOURCE: RTECS (2006)
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)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 3	-	Warning	Causes mild skin irritation	There is description that the skin is stimulated (HSDB (2005), HSFS (1993), and SITTIG (4th, 2002)), and it was set as Category 3.
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Since there is the description that it stimulates to eyes (HSDB (2005), HSFS (1993), and SITTIG (4th, 2002)), it was classified into Category 2B.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Category 1	(Respiratory sensitization)-; (Skin sensitization)Exclamation mark	(Respiratory sensitization)-; (Skin sensitization)Warning	(Respiratory sensitization)-; (Skin sensitization)May cause allergic skin reaction	Respiratory sensitization: No data. Cutaneous Sensitization: In MAK/BAT (2005) and JsoFH advice (2005), mercury and mercury compounds was supposed to have risk of cutaneous sensitization. Since we found the descriptions that skin sensitization may be caused also in HSFS (1993) and SITTIG (4th, 2002) about this product, we categorized it as Category 1.
5 Germ cell mutagenicity	Classification not possible	-	-	-	Without data. In addition, it is supposed that there is no mutagenicity in metal mercury (CICAD (J), 50, 2003) and cyanide (CICAD (J), 61, 2004; PIM G003, WHO/ICPS, 1997).
6 Carcinogenicity	Classification not possible	-	-	-	The inorganic mercury compound is classified into Group 3 in IARC 36 (1995) and A4 in ACGIH TLV (2006). Although all were equivalent to out of Category, a suitable carcinogenicity test about cyanide was not conducted (CICAD (J), 61, 2004; PIM, G003, WHO/ICPS, 1997). And it was considered that it couldnot be classified due to the lack of data of the
7 Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the unborn child	Although there is no data of this product, the inorganic mercury compound is a developmental toxicologies substance by father exposure (natural abortion in humans is reported ) in Chemically Induced Birth Defects (3rd, 2000) of classification guidelines reference. Since generating toxicity was observed also in California Proposition 65 (2005), it was considered as Category 1B. In addition, "it is suggested that mercury element or an inorganic mercury compound is not developmental toxic substances at the dose which does not give toxicity to the maternal" (CICAD (J) 50, 2003), and also there are description that "cyanide induces detrimental effect against development only by the given dose or concentration which has toxicity in dam clearly" (CICAD (J), 61, 2004).

8	Specific target organs/systemic toxicity following single exposure	Category 1 (cardiovascular system, respiratory organs, central nervous system, kidneys)	Health hazard	Danger	Cause damage to organs (cardiovascular system, respiratory organs, central nervous system, kidneys)	There are no data for this substance. But CICAD (J) 61(2004), a Priority 1 document, lists the cardio-vascular system, respiratory system and central nervous system as the target organs of the cyanide of the substance in acute toxicity tests. The substance was classified as Category 1 (cardio-vascular system, respiratory system, central nervous system, kidneys) because it is reported in CICAD 50 (2003) that effects of the inorganic mercury compound on the kidneys are observed in acute toxicity tests in humans and animals.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (central nervous system, kidneys)	Health hazard	Danger	Causes damage to organs (central nervous system, kidneys) through prolonged or repeated exposure	Based on the description that central nervous systems and kidney are affected by inorganic mercury compounds (CICAD(J)50 (2003) and ACGIH-TLV (2006) (both of which are the Priority 1 document)) and that in repeated exposure of cyanide affects the central nervous systems, too (CICAD (J) 61 (2004), and HSFS (1993; Priority 2 document) also has the same statement by this product, therefore we classified it into Category 1 (central nervous systems, kidney).
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 48-hour EC50=20microg/L of Crustacea (Daphnia magna) (HSDB, 2004).
11 Hazardous to the aquatic environment (chronic)	Category 1	Environment	Warning	Very toxic to aquatic life with long lasting effects	Classified into Category 1, since acute toxicity was Category 1, and it is a metallic compound, behavior in water and bioaccumulative potential are unknown.