GHS Classification

ID35 Mercury

CAS 7439-97-6 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	-	-	-	Containing no chemical groups with explosive properties
2	Flammable gases	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
3	Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4	Oxidizing gases	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
5	Gases under pressure	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
6	Flammable liquids	Not classified	-	-	-	Non-combustible (ICSC, 2004)
7	Flammable solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
8	Self-reactive substances and mixtures	Not applicable	-	-	-	Containing no chemical groups with explosive or self-reactive properties
9	Pyrophoric liquids	Not classified	-	-	-	Non-combustible (ICSC, 2004)
10	Pyrophoric solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
11	Self-heating substances and mixtures	Not classified	-	-	-	Non-combustible (ICSC, 2004)
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	-	-	-	Inorganic substance containing no oxygen and halogen
14	Oxidizing solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
15	Organic peroxides	Not applicable	-	-	-	Not organic compounds
16	Corrosive to metals	Classification not possible	-	-	-	Classification not possible, because of a lack of data. The substance corrodes aluminum and a variety of other metals, with which it amalgamates (ICSC, 2004). Corrosivity to metals remains uncertain, though classified as "corrosive substances" (as the classification based on UN Recommendations on the Transport of Dangerous Goods includes "skin corrosivity") (UN#2809).

Health Hazards

	Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1	Acute toxicity (oral)	Classification not possible	-	-	-	No data available. For details about other inorganic mercury compounds, refer to other mercuric chloride.
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 "liquid" according to the GHS definition and inhalation of its gas is not expected.
1	Acute toxicity (inhalation:	Classification not possible	-	-	-	No data available
1	Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2	Skin corrosion / irritation	Classification not possible	-	-	-	Classification not possible, because of a lack of data. Typical symptoms in humans include: pruritic eruption (inhalation, oral and dermal routes), skin separation associated with acrodynia (dermal exposure to mercury vapor).
3	Serious eye damage / eye irritation	Classification not possible	-	-	-	Classification not possible, because of a lack of data. Typical symptoms in humans include: conjunctivitis caused by eye exposure to mercury vapour.
4	Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Category	Exclamation mark	Warning	May cause allergic skin reaction	Respiratory sensitization: No data available Skin sensitization: Based on description in EHC 118 (1991) and CICAD 50 (2003) (human health effects), and the classification by the Japanese Society of Occupational Allergy (Skin Sensitization Substances) and the Japan Society for Occupational Health (2005) (Skin Group 1).
5	Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects	Based on the results of in vivo somatic cell mutagenicity tests (ATSDR (1999)): Mercuric compounds induce chromosome aberrations in animal somatic cells (though no data are available on the mutagenicity and genotoxicity of mercury).
6	Carcinogenicity	Not classified	-	-	-	Due to the fact that the substance is classified as Category A4 by ACGIH (2001), Group 3 by IARC (1993) and Group D by EPA (1995)
7	Toxic to reproduction	Category 1A	Health hazard	Danger	Suspected of damaging fertility or the unborn child	Based on the description in CERI Hazard Data 2001-58 (i) (2002): Data on human occupational exposure indicate an increase in male-induced abortions, paramenia (compared to control subjects), spontaneous abortions, stillbirths and congenital malformations; mercury concentrations in the hair and pubic hair are correlated to adverse effects on reproduction potential and the incidence of paramenia.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (inhalation administration: respiratory organs, kidneys, central nervous system, gingiva, gastrointestinal tract, cardiovascular system, liver)	Health hazard	Danger	Causes damage to organs (inhalation administration: respiratoy organs, kidneys, central nervous system, gingiva, gastrointestinal tract, cardiovascular system, liver)	Based on the results of inhalation administration because the substance is hardly absorbed through oral administration, the toxicity of which manifests exclusively in the inhalation route. As for inhalation administration, based on the human evidence including "pectoralgia, dyspnea, coughing, hemoptysis, pulmonary impairment, diffuse cellular infiltration, pneumonitis," "temporary albuminuria, hematuria, oliguresis, acute renal failure associated with necrosis of proximal convoluted tubules," "persistent excitement loss of vigor, decreased libido," "gingivitis, stomatorrhagia, loss of a tooth," "diarrhea, necrosis of gastric/duodenal mucosae, elevation of blood pressure, an increase in heart rate" (CERI Hazard Data 2001-58 (i) (2002)), "enlargement of the liver, vacuolation of centrolobular hepatocytes" (CICAD 50 (2003)), and evidence from animal studies including "degeneration and necrosis of the alveolar epithelium, kidneys, heart, endocolitis and liver" (CERI Hazard Data 2001-58 (i) (2002)). The effects were observed at dosing levels within the guidance value ranges for Category 1.

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (inhalation administration: central nervous system, peripheral nervous system, kidneys, gingiva, cardiovascular system, blood system, liver)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (inhalation administration: central nervous system, peripheral nervous system, kidneys, gingiva, cardiovascular system, blood system, liver)	Based on the results of inhalation administration because the substance is hardly absorbed through oral administration, the toxicity of which manifests exclusively in the inhalation route. As for inhalation administration, based on the human evidence including "tremor, loss of memory, visual disorder, a decrease in locomotor activity, paresthesia, a decrease in nerve conduction velocity," "nephropathy, degeneration of proximal convoluted tubules and glomeruli," "gingival atrophy, deposition of blue pigments in the gingival crest, loss of a tooth," "an increase in the frequency of palpitation, a reduction in the cardiovascular reflex response, an increase in the incidence of hypertension," "an increase in white blood cell count, a decrease in platelet count, nasal hemorrhage, a significant decrease in hemoglobin concentrations and hematocrit levels" (CERI Hazard Data 2001-58 (i) (2002)), "adverse effects on hepatocytes (no details available)" ((CICAD 50 (2003)), and the evidence from animal studies including "severe brain cell degeneration associated with mild lesion and necrosis, mild to severe hepatocyte degeneration associated with necrosis, severe degeneration and necrosis of renal tissues" (ATSDR (1999)), "loss of Purkinje cells in the cerebellum, severe gliosis in the brain stem (particularly in nuclei pontis)," "mild to moderate lesion in the heart (no details available)" (CERI Hazard Data 2001-58 (i) (2002)).
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	Since it was metal and the behavior in the water was unknown, it classified into Category 4.