GHS Classification

ID168 Lead

CAS 7439-92-1 Date Classified: Aug. 1, 2005 (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 (ICSC (J) (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 (ICSC (J), 2002)
11	Self-heating substances and mixtures	Not classified	–	–	–	Not combustible (ICSC(J) (2002))
12	Substances and mixtures, which in contact with water, emit flammable gases	Not classified	–	–	–	Not cause a serious reaction with water. (Ullmanns (E), 5th, 1995, A15:193-195)
13	Oxidizing liquids	Not applicable	–	–	–	Solid (GHS definition)
14	Oxidizing solids	Not applicable	–	–	–	Containing no oxygen , chlorine and fluorine.
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)	Classification not possible	–	–	–	No data available
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	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	–	–	–	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)	Although there are contradicting results about the chromosome aberration in the peripheral blood lymphocytes from people who are engaged in lead-related work (IARC suppl.7 (1987), EHC 3 (1977), DFGOTvol.17 (2002), ACGIH (7th, 2001)), there are mentions of lead itself having chromosome aberrative/micronucleus inductive actions. So the substance was classified as Category 2.

6	Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	It is classified into 2B according to IARC Supplement 7 (1987) and Japan Society for Occupational Health, and classified into A3 according to ACGIH (7th, 2001), and is classified into B2 according to EPA (IRIS (1993)). So it was set as Category 2.
7	Toxic to reproduction	Category 1A	Health hazard	Danger	May damage fertility or the undorn child	Since there is the description that there is the effect of sperm formation disorder in human exposure example (EHC 3 (1977), ACGIH (7th, 2001), DFGOTvol.17 (2002)), and there is anovulation in the female occupation exposure example (EHC 3 (1977)), it is classified into the Category 1A. There is the description about the relationship with neonatal developmental disorder of recognitive function (ACGIH (7th, 2001), DFGOTvol.17 (2002), PATTY (4th, 1994) and IARC 23 (1980)) and there is the relationship with the increase of miscarriage (DFGOTvol.17 (2002), and PATTY (4th, 1994)). But the obvious conclusion is not indicated.
8	Specific target organs/systemic toxicity following single exposure	Classification not possible	–	–	–	Although there was a case report that renal dysfunction was observed in the acute intoxication in human (DFGOT, vol.17 (2002)), there was no kidney damage in the subsequent epidemiologic study in the same source of reference. So data is insufficient for making the kidney into target organ, therefore, it cannot be classified.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (hematopoietic system, kidneys, central nervous system, peripheral nervous system, cardiovascular system, immune system)	Health hazard	Danger	Causes damage to organs (hematopoietic system, kidneys, central nervous system, peripheral nervous system, cardiovascular system, immune system) through prolonged or repeated exposure	Due to the descriptions that the target organs were hematopoietic system, nervous system, kidney, and cardiovascular system in DFGOTvol.17 (2002), that heme synthesis inhibitors, nephropathy and brain diseases were observed in the human exposure examples in EHC 3 (1977), ACGIH (7th, 2001), PATTY (4th, 1994), and IARC 23 (1980), that it affects to the peripheral nerve and function of central nerve system in humans exposure examples in EHC 3 (1977), ACGIH (7th, 2001), PATTY (4th, 1994), that it affects to cardiovascular system, such as high blood pressure in human exposure examples in EHC 3 (1977), ACGIH (7th, 2001), that the immunosupressive effect was observed in human exposure examples in PATTY (4th, 1994), it is considered that the target organs were hematopoietic system, the kidney, central nervous systems, peripheral nervous system, cardiovascular system and immune system, and they all were classified into Category 1. Although there are the descriptions of the case reports of thyroid or adrenal hypofunctions in EHC 3 (1977), each case reports are before 1970, and there is no similar report after that, since there is the description that no effects was observed in the thyroid in DFGOTvol.17 (2002), the thyroid and the adrenal gland were not considered as for target organs.
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)	Classification not possible	–	–	–	Classification not possible due to lack of data