GHS Classification

ID566 Zinc chloride

CAS 7646-85-7 Date Classified: Jul. 24, 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 substance (Hommel, 1991)
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 substance (Hommel, 1991)
11	Self-heating substances and mixtures	Not classified	–	–	–	Non-combustible solid (Hommel, 1991)
12	Substances and mixtures, which in contact with water, emit flammable gases	Not classified	–	–	–	Stable to water (Weiss, 2nd, 1985)
13	Oxidizing liquids	Not applicable	–	–	–	Solid (GHS definition)
14	Oxidizing solids	Not classified	–	–	–	UNRTDG No. 2331, Class: 8; PGIII
15	Organic peroxides	Not applicable	–	–	–	Containing no -0-0- structure
16	Corrosive to metals	Classification not possible	–	–	–	Melting point: 732degC (ICSC, 2002). 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	SPECIES: Rat ENDPOINT: LD50 VALUE: 1100 mg/kg REFERENCE SOURCE: EU-RAR (2004)
1	Acute toxicity (dermal)	Category 2	Skull and crossbones	Danger	Fatal in contact with skin	It was set as Category 2 based on guinea pig LD50 = 173mg/kg (IUCLID (2000)).
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 1-5	Skull and crossbones	Danger	Fatal if inhaled	LC50 value decided for the animal is not acquired. But the humans deaths after exposure is reported though an exposure level was unknown (ACGIH (2001), PATTY (5th, 2001)). Therefore, it was set to category 1-5.
2	Skin corrosion / irritation	Category 1A-1C	Corrosion	Danger	Causes severe skin burns and eye damage	The dermal surface inflammatory change and ulcers are observed in rabbit skin irritation test (EU-RAR (2004)). Also formations of pustule and vesicles on skin in human patch test were reported (DFGOTvol.19 (2002)). Therefore it was classified as Category 1A-1C.
3	Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	An eye has in an accident two reports of the humans who received concentrated zinc chlorides exposure (EU-RAR (2004)). It resulted in cornea cicatrization permanent subsequently to edema, and was set as Category 1 based on description (EU-RAR (2004)) that recovery took 6 - 28 weeks.
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] The occupational asthmas by soldering flux has been reported by humans (DFGOTvol.19 (2002)) but causes are unknown. since they are also exposed to ammonium chlorides. Therefore, it cannot be classified. [Skin sensitization] No data

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. Based on the positive results from the chromosome aberration tests using rats and mice (the in vivo mutagenicity test in somatic cells) (EU-RAR (2004), EHC 221(2001)).
6	Carcinogenicity	Classification not possible	–	–	–	Presently there is no institution which has defined the classification Category about the carcinogenicity of the zinc chloride. Each existing long-term animal examination (DFGOT vol.19 (2002)) has defect on protocol as a carcinogenicity tests, and the data which can be utilized about the carcinogenicity of zinc itself is also restricted. EU and U.S. also stated that carcinogenic evaluation has insufficient information (IRIS (2006), EU-RAR (2004)). From the above thing, since data was insufficient, it determined "It cannot be classified."
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the undorn child	Based in the reduction of the number of littermates in the dose causing general toxicity of maternal animals (DFGOTvol.19 (2002)), it is classified into the Category 2
8	Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory, liver, pancreas)	Health hazard	Danger	Cause damage to organs (respiratory, liver, pancreas)	The artery occlusions in the lungs and fibrosis, cyanosis, ARDS syndrome, etc. are reported in humans after inhalation exposure (ACGIH (7th 2001), PATTY (5th, 2001), and the symptoms includes the irritation to nose, the throat, and the respiratory tracts in addition to nausea, cough, etc. (EU-RAR (2004), ACGIH (7th, 2001)). Furthermore, there is the report of liver damages and pancreatic achylias by oral ingestion (EHC 221 (2001)). It was classified into Category 1 (respiratory system, liver, pancreas) based on these information.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (lung, liver)	Health hazard	Danger	Causes damage to organs (lung, liver) through prolonged or repeated exposure	In addition to the lung lymphocytic infiltration and the fatty degeneration of the liver, with higher concentrations, high death rates is seen with a mouse by inhalation exposure (DFGOT vol.19 (2002)). It was classified in Category 1 (lungs, liver) by comparing toxic effect concentrations seen in murine lung and liver with the guidance value.
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=0.1mg/L of Crustacea (Daphnia magna) (CERI Hazard Data, 2002).
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 is unknown., though less bioaccumulative (BCF=178 (existing chemical safety inspections data)).