

GHS Classification

ID1348

BHC or HCH

CAS 608-73-1

Date Classified: Feb. 20, 2007 (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) (1998))
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), 1998)
11 Self-heating substances and mixtures	Not classified	-	-	-	Not combustible (ICSC(J) (1998))
12 Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	-	-	-	The chemical structure of the substance does not contain metals or metalloids(B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At).
13 Oxidizing liquids	Not applicable	-	-	-	Solid (GHS definition)
14 Oxidizing solids	Not applicable	-	-	-	Organic compounds containing chlorine and the chlorine is chemically bonded only to carbon (but not to other elements).
15 Organic peroxides	Not applicable	-	-	-	Organic compounds containing no -O-O- structure
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 3	Skull and crossbones	Danger	Toxic if swallowed	Based on the rat oral LD50 = 100mg/kg (PIM257 (2001), HSDB (2003) and RTECS (2004)) and 2428mg/kg (ATSDR (2005)) , we adopted the lowest value to classify the substance as Category 3. [Note] 1,2,3,4,5,6-hexachlorocyclohexane has several stereoisomers (alpha-; beta-; gamma-; delta-isomers, etc.), but this ID for the health hazards was investigated and classified as CAS: 608-73-1(isomer mixture) . Also refer to the classification results of 1,2,3,4,5,6- hexachlorocyclohexane [Linden] (ID612, CAS: 58-89-9) which is the gamma-isomer.
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	It was set as Category 3 from rat dermal LD50 = 900mg/kg (PIM257 (2001), RTECS (2004)).
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 3	Skull and crossbones	Danger	Toxic if inhaled	It was set as category 3 base on rat inhalation LC50 (4hr) = 0.69mg/L (RTECS (2004)). In addition, considering the saturated concentration (about 0.01mg/L) computed from this substance's steam pressure (0.1Pa at 25degC), it was presumed that the experiment was conducted in dust and mists conditions.
2 Skin corrosion / irritation	Classification not possible	-	-	-	Insufficient data available
3 Serious eye damage / eye irritation	Classification not possible	-	-	-	Insufficient data available.
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: no data available. Skin sensitization: there is the description(ICSC(J)(1998) that dermatitis may be caused by repetition or the long-term skin contact to the human, it is unknown whether SITTIG (4th, 2002)) is caused by an allergic reaction, and data is insufficient and it cannot classify. In addition, also refer to 1, 2, 3, 4, 5, 6-hexachlorocyclohexane [Linden] (ID 612, and CAS:58-89-9).

5	Germ cell mutagenicity	Not classified	-	-	-	There is the negative result of the dominant fatality test using a mouse, and the negative result of the in vivo chromosome aberration test using mouse bone marrow cells (IARC, Suppl.7 (1987), ATSDR (2005), PIM257 (2001)), and it is classified as the out of the Category. In addition, although there is also positive knowledge in mice dominant fatality tests, it is considered as suspicious (IARC, Suppl.7 (1987)). Moreover, Ames test negative (DFGOT vol.5 (1993)) and an in vitro chromosome aberration test positivity (ATSDR (2005), HSDB (2003)) are reported by the in vitro mutagenicity test. In addition, Linden (gamma-body) which is one of the isomer of the quality of this substance is considered as the outside of Category (refer to Linden (ID 612, CAS: 58-89-9)).
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)	Since it is classified into 2B (IARC Suppl.7 (1987)), B-2 (as industrial hexachlorocyclohexane) according to EPA (IRIS (2003)), and R (as Linden and other hexachlorocyclohexane isomeric form) according to NTP (NTP RoC (11th, 2005)), it was set as category 2.
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Although no effect was observed in three-generation reproduction studies and teratogenicity tests using rats (ATSDR (2005)), increased embryo absorption and decreased survival fetus were observed (but not teratogenicity) in reproduction and development toxicity tests using mice (ATSDR (2005), HSDB (2003)) and, in ICSC (J) (1998), there was a description that animal tests showed the potential of toxic effects on human reproduction. Thus, it was set as Category 2. In addition, Linden (gamma-body), one of the isomeric forms of this substance, is set as "out of Category" (see Linden (ID 612, CAS: 58-89-9)).
8	Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system); Category 3 (respiratory tract irritation)	Health hazard	Danger	Causes damage to organs (nervous system); May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation)	It was considered as Category 1 (nervous system) and Category 3 (respiratory irritant) based on the description that it affects human central nervous system in the document of Priority 1 and 2 (nausea, vomiting, muscle spasm, tremor etc.) (PIM257 (2001), DFGOT vol.5 (1993), ICSC (J) (1998), HSDB (2003)), and it stimulates a nose, a throat, and a respiratory tract (HSDB (2003), SITTING (4th, 2002)). Also refer to Linden (gamma body) (ID 612, CAS:58-89-9) which is one of the isomer of this product.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (central nervous system); Category 2 (liver, kidneys)	Health hazard	Danger	Causes damage to organs (central nervous system) through prolonged or repeated exposure; May cause damage to organs (liver, kidneys) through prolonged or repeated exposure	Since symptoms of nausea and tremor in addition to the face and limb paresthesias, headache, and giddiness were observed in the humans who inhaled this product (PIM257 (2001) the document of Priority 1), symptoms such as vomiting, tremor, and paralysis of the hind limbs were observed with the dose being equivalent to Category 1 of a guidance value in a rat (ATSDR (2005)), and the effect was observed in liver (cell hypertrophy, centrilobular degeneration, etc.) and kidney (a glomerular degeneration, the tubular necrosis etc.) with the dose being equivalent to Category 2 of a guidance value (ATSDR (2005), DFGOT vol.5 (1993)), it was classified into Category 1 (central nervous systems) and Category 2 (liver, kidney). Also refer to Linden (gamma object) which is one of the isomers of this product (ID 612, CAS:58-89-9).
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 96-hour LC50=0.34microg/L of Crustacea (Pink shrimp) (AQUIRE, 2003).
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 is Category 1, not rapidly degrading (BOD: 0% (existing chemical substances safety inspections data)), and bioaccumulative (BCF=893 (existing chemical substances safety inspections data)).