

GHS Classification

ID199 **PCB 1254; polychlorobiphenyl; Chlorodiphenyl (42% chlorine)**

CAS 1336-36-3, 5346! Date Classified: Mar. 23, 2006 (Environmental Hazards: Feb. 10, 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	-	-	-	Liquid (GHS definition)
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Liquid (GHS definition)
5 Gases under pressure	Not applicable	-	-	-	Liquid (GHS definition)
6 Flammable liquids	Not classified	-	-	-	Flash point: >93degC, Non-combustible (ICSC(J), 1999).
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
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 classified	-	-	-	Not combustible (ICSC (J) (1999))
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Not combustible (ICSC(J) (1999))
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	-	-	-	Organic compounds containing chlorine (but not oxygen and fluorine) chemically bonded only to carbon and hydrogen (but not to other elements).
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Containing no -O-O- structure
16 Corrosive to metals	Not classified	-	-	-	UNRTDG Class: 9

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	Calculated based on rat LD50 value of Aroclor 1254: 1010mg/kg (CICAD 55, 2003, ATSDR, 2000, PATTY 4th, 1994, EHC 140, 1992), 4000mg/kg (IARC 18, 1978, EHC 140, 1992), 1300mg/kg (IARC 18, 1978, EHC 140, 1992), 1400mg/kg (EHC 140, 1992), and 2000mg/kg (IARC 18, 1978, EHC 140, 1992). The calculated values became 1057mg/kg, and it was set as Category 4. Classified based on the toxic value of Aroclor 1254, because the toxic value of Aroclor 1254 was lower than Aroclor 1242. (About Aroclor 1242, it is in Category 5 based in rat LD50 values: 4250mg/kg (CICAD 55, 2003, ATSDR, 2000, EHC 140, 1992) and 8700mg/kg (IARC 18, 1978))
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	It was set as Category 3 based on rabbit percutaneous LD50 (MLD): 800mg/kg (EHC 140, 1992, ATSDR, 2000, IARC 18, 1978).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (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	-	-	-	Since data is insufficient, it cannot be classified. Skin pathological changes, such as chloracne, were caused in the human occupational exposure (exposure to vapor). But there was no data about the stimulativeness at the time of the direct skin contact.
3 Serious eye damage / eye irritation	Classification not possible	-	-	-	There is description that eye irritation is acknowledged in human occupation evidence of exposure (exposure to vapor) (ATSDR (2000) and EHC 140 (1992)). But there is no animal examination data or human case report which attached PCB to eye surface directly. So it cannot be classified due to insufficient data.
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)-	No data available
5 Germ cell mutagenicity	Not classified	-	-	-	The substance was regarded as outside the categories. Because of the negative results from the dominant lethal tests in rats (ATSDR, 2003, IARC 18, 1978, EHC 140, 1992), from chromosome aberration tests in mammalian spermatogenic cells (CICAD 55, 2003, ATSDR, 2000, IARC 18, 1978, EHC 140, 1992), and from the chromosome aberration tests and micronucleus tests using mammalian bone-marrow cells (CICAD 55, 2003, ATSDR, 2000, IARC 18, 1978, EHC 140, 1992, NTP DB, Access on Oct 2005).

6	Carcinogenicity	Category 1B	Health hazard	Danger	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	It is classified into A3 according to ACGIH (7th, 2001) and is classified into B2 according to EPA (IRIS, Access on Oct 2005). But it is classified into 2A according to IARC (Access on Oct 2005) and into 2A according to Japan Society for Occupational Health (2005), and classified into R according to NTP (11th, 2005). So it was set as Category 1B.
7	Toxic to reproduction	Category 1A	Health hazard	Danger	May damage fertility or the unborn child	There is the description that there were the female reproductive toxicity such as menstrual irregularity, the decrease of reproductive potential of male, and fetal growth abnormality in the human exposure (CICAD 55 (2003), PATTY (4th, 1994), IARC 18 (1978), and ATSDR (2000)), it is classified into Category 1A.
8	Specific target organs/systemic toxicity following single exposure	Category 3 (respiratory tract irritation)	Exclamation mark	Warning	May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract)	Due to the description that respiratory irritant is observed in human in ACGIH (7th, 2001), ATSDR (2000), and EHC 140 (1992), it is judged that it has respiratory irritant and it was classified into Category 3.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (liver, skin, immune system)	Health hazard	Danger	Causes damage to organs (liver, skin, immune system) through prolonged or repeated exposure	Due to the descriptions that in human exposure example, hepatic dysfunction (ACGIH 7th, 2001, PATTY 4th, 1994, IARC 18, 1978, EHC 140, 1992 and ATSDR, 2000), skin condition, such as chloracne (CICAD 55, 2003, ACGIH 7th, 2001, PATTY 4th, 1994, IARC 18, 1978, EHC 140, 1992 and ATSDR, 2000), and immune dysfunction (CICAD 55, 2003, EHC 140, 1992, ATSDR, 2000) were observed, it is considered that target organs were liver, the skin, and an immunity system and they all were classified into Category 1.
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=0.008mg/L of fishes (Fathead minnows) (EHC140, 1993).
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, stable in environmental, not rapidly degrading and bioaccumulative (BCF=270000 (EHC140, 1993)).