GHS Classification

ID239 Biphenyl

CAS 92-52-4 Date Classified: Oct. 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	Classification not possible	–	–	–	There is information on flame ranges (Hommmel (1991) Card No. 241 and others), there is no data with a defined test method.
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	–	–	–	Flash point: 540degC (ICSC (J), 1994)
11	Self-heating substances and mixtures	Classification not possible	–	–	–	No data available
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 metaloids(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	–	–	–	Containing no oxygen , chlorine and fluorine.
15	Organic peroxides	Not applicable	–	–	–	Containing no -0-0- 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 5	–	Warning	May be harmful if swallowed	Calculated based on rat LD50 values: 2400mg/kg (CERI Hazard Data, 1999 and MOE Risk Assessment the 1st volume, 2002), 3280mg/kg (MOE Risk Assessment the 1st volume, 2002, ACGIH 7th, 2001, and PATTY 4th, 1994), and 5040mg/kg (CERI Hazard Data, 1999). Since the calculated values was 2489mg/kg, it was set as Category 5.
1	Acute toxicity (dermal)	Category 5	–	Warning	May be harmful in contact with skin	Based on rabbit LD50 value: 2500mg/kg (CERI Hazard Data, 1999, MOE Risk Assessment the 1st volume, 2002), and >5010mg/kg (MOE Risk Assessment the 1st volume, 2002), the lower value was adopted and it was set to as Category 5.
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	–	–	–	There in only a data that mouse LC50 (4 hours) value: >43ppm (corresponding values 0.27mg/L) (CERI Hazard Data (1999), CICAD 6 (1999)), but the category could not be specified. Therefore, it cannot be classified since data is
2	Skin corrosion / irritation	Category 3	–	Warning	Causes mild skin irritation	From descriptions that irritation was not observed in the rabbit test and human skin application test (CICAD 6 (1999)), it was thought to be out of Category. However, from description that weak irritation is indicated on the skin (CERI hazard data (1999)), it was judged that there was slight irritation and was classified as Category 3.
3	Serious eye damage / eye irritation	Category 2B	–	Warning	Causes eye irritation	It was set as Category 2B from description that mild irritation was admitted in the test applied to the eye of the rabbit of CERI Hazard Data (1999) and CICAD 6 (1999).
4	Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Not classified	–	–	–	Respirator: No data Skin: Classified as out of category because CICAD 6 (1999) describes that no skin sensitization was found in the maximization test using guinea pigs.
5	Germ cell mutagenicity	Not classified	–	–	–	The substance was regarded as outside the categories. Because there are negative results from the chromosome aberration tests using rat bone-marrow cells, which are in vivo mutagenicity tests using somatic cells (CERI Hazard Data, 1999, CICAD 6, 1999).
6	Carcinogenicity	Not classified	–	–	–	Since it was classified into D according to EPA (1991) (IRIS, 2005), it was set as the outside of Category.
7	Toxic to reproduction	Not classified	–	–	–	Since there are the discription of no effect to reproductive potential in rat reproduction study (CERI Hazard Data (1999), MOE Risk Assessment volume 1 (2002), CICAD 6 (1999), PATTY (4th, 1994), IRIS(2005)), and there is no severe reproductive toxicity in the dose causing general toxicity to parent animals in pregnancy rat oral administration test (CERI Hazard Data (1999), CICAD 6 (1999), PATTY (4th, 1994), IRIS(2005)), it is considered as on the outside of Categry.

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 irritation)	Due to the descriptions that weak irritation is indicated to mucosa as the effect to human in CERI Hazard Data (1999), and that mild dyspnea was observed in the inhalation exposure test using mouse in CERI Hazard Data (1999) and CICAD 6 (1999). So it is judged that it has respiratory irritantation, therefore, it was classified into Category 3 (respiratory irritant).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (liver, nervous system, respiratory organs); Category 2 (kidneys)	Health hazard	Danger; Warning	Causes damage to organs (liver, nervous system, respiratory organs) through prolonged or repeated exposure; May cause damage to organs (kidneys) through prolonged or repeated	Based on the descriptions in CERI Hazard Data (1999), MOE Risk Assessment the 1st volume (2002), CICAD 6 (1999), ACGIH (7th, 2001), or PATTY (4th, 1994) that a liver damage, the influence on a center and the peripheral nervous system and bronchitis are reported in occupational explosure case, it was classified in Category 1 (liver, nervous systems,respiratory systems). Moreover, based on the description in CICAD 6 (1999) that the renal effects was seen in the range of guidance value of Category 2 in the oral feeding administration tests during 21 days using the rat, it was classified in Category 2 (kidney).
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 LC50=360microg/L of Crustacea (Daphnia magna) (MOE Risk Assessment No.1, 2002).
11	Hazardous to the aquatic environment (chronic)	Not classified	–	–	–	Since rapidly degrading (BOD: 66% (existing chemical safety inspections data)), and less bio-accumulative (log Kow=3.98 (PHYSPROP Database, 2005)).