GHS Classification

ID951 **Benzo[a]pyrene**

CAS 50-32-8 Date Classified: Jun. 20, 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	Classification not possible	–	–	–	No data available by regulated examination methods, though "Flammable" (ICSC (J) (1997))
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	Classification not possible	–	–	–	No data available
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 -O-O- structure
16	Corrosive to metals	Classification not possible	–	–	–	Liquid at a test temperature, 55degC. 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	–	–	–	The only LD50 value acquired is >1600mg/kg (EHC 202, 1998) in a mouse. This data might be considered as category 4, category 5 or out of category. But we concluded that the value could not be classified because we were not sure which choise was adequate.
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	Category 2	Exclamation mark	Warning	Causes skin irritation	There was no concrete case report. But it was set as Category 2 from description that the irritation accompanied by erythema and burning sensations was in the skin in the humans (HSDB (2005), HSFS (1998), and SITTIG (4th, 2002)).
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 organs: Although there was description in CERI Hazard Data (1997) that it is told to be related to allergy as effect on humans, since there was no evidence showing to induce respiratory hypersensitivity by inhalation exposure to human, we presupposed that we could not classify for the insufficiency of data. Skin : Although there is description that contact sensitivity was acknowledged in the test using the guinea pigs and mouse of EHC 202 (1998) and ATSDR (1995), the positive rate was unknown, likewise, although there was description that it is said to be related to allergy as effect on human in CERI Hazard Data (1997), there was no evidence which shows that it induces hypersensitivity by skin contacts, therefore we presupposed that we could not classify it for the insufficiency of data.

5	Germ cell mutagenicity	Category 1B	Health hazard	Danger	May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	There is a positive result (EHC 202, 1998; ATSDR, 1995) by the dominant lethal test using a mouse, which is an in vivo multigeneration mutagenicity test using a germ cell. So it is set as Category 1B.
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 was classified into B-2 (IRIS, 2005) in EPA in 1994. But it was in group 2A (IARC Suppl.7, 1987) in IARC, 2A (industrial hygene academic society recommentation, 2005) in Japan Assoc. of Industrial Health and ACGIH, 2A (ACGIH 7th, 2001) in ACGIH, R (NTP RoC 11th, 2005) in NTP and the category 2 (EU-Annex I, 2005) in EU. So it was considered as Category 1B according to the classification of NTP which is latest assessment document.
7	Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the undorn child	It was considered as Category 1B based on the description that the impact on reproductive potential was acknowledged at the dose in which general toxicity is not observed in the dam animals by the oral administration examination in pregnancy mouse (EHC 202 (1998), CERI Hazard Data (1997), IARC 32 (1983), ATSDR (1995)), although there is the strain differences.
8	Specific target organs/systemic toxicity following single exposure	Classification not possible	-	-	-	No data available.
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (bone marrow, respiratory organs)	Health hazard	Warning	May cause damage to organs (bone marrow, respiratory organs) through prolonged or repeated exposure	Based on descriptions that the oral administration studies on mice, myelosuppression was observed with the administration within the guidance value range for Category 2 in spite of strain differences (EHC 202 (1998), CERI Hazard Data (1997), IARC 32 (1983) and ATSDR (1995)), it was classified into Category 2 (medullary). Moreover, although there is description that it is said to be related to respiratory disorders and pulmonary emphysema as a chronic effects on humans (CERI Hazard Data (1997)), there was no concrete case report, and since the classification to Category 1 could not be justified, it was classified as Category 2 (respiratory tracts).
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 24-hour EC50=40microg/L of Crustacea(Daphnia magna) (MOE Risk Assessment No.2, 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, supposed not rapidly degrading (BIOWIN), and bioaccumulative (log Kow=6.13 (PHYSPROP Database, 2005)).