

GHS Classification

ID246

CAS 101-68-8

Physical Hazards

Diphenylmethane diisocyanate (4,4'-M.D.I.)

Date Classified: Jul. 24, 2006 (Environmental Hazards: Mar. 31, 2006)

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
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: 232degC (Hommel, 1991, Card No.874)
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 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 oxygen (but not chlorine and fluorine) and the oxygen is chemically bonded only to carbon and hydrogen (but not to other elements).
15 Organic peroxides	Not applicable	-	-	-	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)	Not classified	-	-	-	SPECIES: Rat ENDPOINT: LD50 VALUE: 31600 mg/kg REFERENCE SOURCE: CICAD (27, 2000)
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)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	Category 2 because of "SPECIES: Rat; ENDPOINT: LC50(4hr.; VALUE: 0.369mg/L"(ACGIH 7th, 2001)
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	It was classified as Category 2 from description that rabbit skin was irritated (IARC 19 (1979)).
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	It was set as Category 2A-2B from description that the eye of the rabbit is stimulated (IARC 19 (1979)).
4 Respiratory/skin sensitization	Respiratory sensitization: Category 1; Skin sensitization: Category 1	(Respiratory sensitization)Health hazard; (Skin sensitization)Exclamation mark	(Respiratory sensitization)Danger; (Skin sensitization)Warning	(Respiratory sensitization)May cause allergy or asthma symptoms or breathing difficulties if inhaled; (Skin sensitization)May cause allergic skin reaction	Respiratory-organs: They are classified into the airway 1st group (Japan Society for Occupational Health Recommendation, 2005) according to Japan Society for Occupational Health, and Sah (MAK/BAT, 2004) according to DFG. Since it was listed as a respiratory allergic substance by the Japanese occupational and the allergology meeting (the Japanese occupational and environmental allergology meeting magazine, 2004), it was referred to as Category 1. Skin: Since it was indicated that a clear proof of skin sensitization was in CICAD 27 (2000) based on the result of Mouse Ear Swelling Test (MEST), it was referred to as Category 1.
5 Germ cell mutagenicity	Not classified	-	-	-	The substance was regarded as outside the categories. Because there are negative results from the chromosome/micronucleus analysis in human peripheral blood lymphocytes, which is an in vivo mutagenicity test using somatic cells, and the micronucleus test using mouse erythrocytes (DFGOT vol.8, 1997).

6	Carcinogenicity	Not classified	-	-	-	Since it is classified into group 3 (IARC 71, 1999) according to IARC and is classified into CBD (IRIS, 1998) according to EPA, it was set as the outside of Category.
7	Toxic to reproduction	Not classified	-	-	-	Since there is the description that there is obvious reproductive toxicity in the dose causing general toxicity to parent animals in rat pregnancy inhalation exposure test (IARC 71 (1999), IRIS (1998) and CICAD 27 (2000)), it was considered as on the outside of Category.
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)	It was classified into Category 3 (respiratory irritant) due to the description that there is respiratory irritation to the humans in DFGOT (vol.8, 1997) and IARC 71 (1999).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs)	Health hazard	Danger	Causes damage to organs (respiratory organs) through prolonged or repeated exposure	It was classified in Category 1 (respiratory tracts) from the descriptions in IRIS (1998) and CICAD 27 (2000) that the effects on the respiratory system, such as focal/multifocal alveolar and bronchioalveolar hyperplasia, and interstitial fibrosis of lungs were seen with the concentration of the guidance value range of Category 1 in the inhalation exposure test using the rat, and from the descriptions in ACGIH (7th, 2001), DFGOT (vol.8, 1997), CICAD 27 (2000), IARC 71 (1999), and Japan Society for Occupational Health Recommendation of Occupational Exposure Limits (1993) that the respiratory dysfunction and increase in generating of a lung disease were seen in human occupation exposure cases.
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)	Classification not possible	-	-	-	Insufficient data available.
11 Hazardous to the aquatic environment (chronic)	Classification not possible	-	-	-	Classification not possible due to lack of data