

GHS Classification

ID212

CAS 5124-30-1

Methylenebis(4,1-cyclohexylene) diisocyanate

Date Classified: Jul. 24, 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	—	—	—	Containing no chemical groups with explosive properties
2 Flammable gases	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
3 Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
5 Gases under pressure	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
6 Flammable liquids	Not classified	—	—	—	The flash point is 200degC (IUCILD (2000))
7 Flammable solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Classification not possible	—	—	—	No data available
10 Pyrophoric solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
11 Self-heating substances and mixtures	Classification not possible	—	—	—	Test methods applicable to liquid substances are not available.
12 Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	—	—	—	Containing no metals or metalloids (B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At)
13 Oxidizing liquids	Not applicable	—	—	—	Organic compounds containing oxygen (but not fluorine and chlorine), with the oxygen bound to carbon and hydrogen (but not to other elements)
14 Oxidizing solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
15 Organic peroxides	Not applicable	—	—	—	Organic compounds containing no "-O-O-" structure
16 Corrosive to metals	Classification not possible	—	—	—	No data available

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	—	—	—	Based on the rat LD50 (oral route) value of 9,900mg/kg (MOE Risk Assessment vol. 2).
1 Acute toxicity (dermal)	Not classified	—	—	—	Based on the rabbit LD50 (dermal route) value of >10,000mg/kg (CERI Hazard Data 2000-48 (2001)).
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "liquid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: vapour)	Category 1	Skull and crossbones	Danger	Fatal if inhaled	Based on the guinea pig LD50 (4 hours) value of 0.026mg/L (equivalent to 2.4ppm), calculated from the testing data of guinea pig LC50 (1-hour inhalation) of 0.051mg/L (MOE Risk Assessment vol. 2 (2003)), was lower than 90% of the saturated vapour concentration (20ppm) under a saturated vapour pressure of 2.1*10 ⁻³ Pa (25degC), the substance was considered as "vapour containing substantially no mist" and was classified based on standard values of gas.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
2 Skin corrosion / irritation	Category 1	—	—	—	Based on the description in the report on rabbit skin irritation tests (ACGIH (7th, 2001)): "The substance produced severe skin irritation." Also based on the description in the report on guinea pig skin irritation tests: "severe erythema and edema were observed." Although the substance, as a severe skin irritant, is classified into Category 1-2 in the absence of data on reversibility, it should be placed in Category 1 from the viewpoint of
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	Based on the description in the report on rabbit eye irritation tests (RTECS (2005)): "Severely irritating." Although classified as Category 1-2A in the absence of data on reversibility, the substance should be placed in Category 1 from the viewpoint of safety.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Category 1	(Respiratory sensitization) — (Skin sensitization) Exclamation mark	(Respiratory sensitization) — (Skin sensitization) Warning	(Respiratory sensitization) — (Skin sensitization) May cause an allergic skin reaction	Respiratory sensitization: Insufficient data available Skin sensitization: Based on the description in the report on guinea pig skin sensitization tests (ACGIH (7th, 2001)): "Skin sensitization: positive." Also based on three cases of skin sensitization reported in human epidemiological studies (MOE Risk Assessment vol. 2).
5 Germ cell mutagenicity	Classification not possible	—	—	—	Classification not possible due to the insufficiently of data (no data available on in vivo mutagenicity/genotoxicity tests)
6 Carcinogenicity	Classification not possible	—	—	—	No data available
7 Toxic to reproduction	Classification not possible	—	—	—	No data available
8 Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system, respiratory organs)	Health hazard	Danger	Causes damage to organs (nervous system, respiratory organs)	Based on the human evidence including "obstructive impairment of pulmonary function" (MOE Risk Assessment vol. 2 (2003)), and the evidence from animal studies including "respiratory effects with tremor and spasm, severe pulmonary congestion and edema" (CERI Hazard Data 2000-48 (2001)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.
9 Specific target organs/systemic toxicity following repeated exposure	Classification not possible	—	—	—	Insufficient data available
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	Since a potential that relevant toxicity was discovered in the water solubility (0.121mg/L(PHYSROP Database, 2005)) of this substance cannot be denied from 96-hour LC50=1.2mg/L of tthe fish (Zebrafish) (CERI Hazard Data, 2002), it was classified into Category 1.
11 Hazardous to the aquatic environment (chronic)	Category 1	Environment	Warning	Very toxic to aquatic life with long lasting effects	Although acute toxicity is Category 1 and bio-accumulation is low (log Kow=2.14(CERI Hazard Data, 2002)), since there was no rapidly degrading (the decomposition by BOD: 0%(Existing Chemical Safety Inspections Data)), it was classified into Category 1.