

GHS Classification

ID89

CAS 4098-71-9

Physical Hazards

Cyclohexane, 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethyl-

Date Classified: Feb. 20, 2007 (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	-	-	-	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	-	-	-	Not classified because of its flash point: is 155-163degC and beyond Category 4 (60degC <f.p.<93degC)
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	-	-	-	Flash point: 430degC (ICSC (J), 1999)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Not classified because of UNRTDG Class: 6.1
12 Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	-	-	-	Metal or half-metal (B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At) is not included. Although it reacts gradually with water at room temperature, and actively reacts in high temperature (ICSC (J), (1999)). And the gas which occurs in that case is mainly carbon dioxide.
13 Oxidizing liquids	Not applicable	-	-	-	Organic compounds containing oxygen (but not chlorine and fluorine) chemically bonded only to carbon (but not to other elements).
14 Oxidizing solids	Not applicable	-	-	-	Liquid (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)	Category 4	Exclamation mark	Warning	Harmful if swallowed	From four results (MOE Risk Assessment the 3rd volume (2004), CERI Hazard Data (2000) and ACGIH (2001)) obtained from rat three examinations, it was set as Category 4 based on LD50= 1097mg/kg calculated with the technical guide.
1 Acute toxicity (dermal)	Category 4	Exclamation mark	Warning	Harmful in contact with skin	It was set as Category 4 based on LD50 = 1060mg/kg which is the lower value of rabbit LD50 = 1060 - 4780 mg/kg (CERI Hazard Data (2000)).
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)	Category 3	Skull and crossbones	Danger	Toxic if inhaled	Since the saturated vapor pressures concentrations pressure of this product is 0.396ppm, it is presumed that LC50 value acquired by all inhalation study was acquired in mist conditions. Based on LC50 = 0.786mg/L calculated by the technical guide using three test results of rats (CERI Hazard Data (2000), MOE Risk Assessment(2004), and ACGIH (2001)), it was set as Category 3.
2 Skin corrosion / irritation	Category 1A-1C	Corrosion	Danger	Causes severe skin burns and eye damage	Since there are statements about severe irritation on humans (HSDB (2003)) and corrosivity and severe necrosis and edematous on rabbits (IUCLID (2000), CERI Hazard Data (2000)); it was classified as Category 1A-1C.
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	Based on that this product is a skin corrosive substance, and that the strong eye stimulus with human is reported (CERI Hazard Data (2000), MOE Risk Assessment The 3rd volume (2004), IUCLID (2000)), and that moderate to severe irritation with rabbit is reported (CERI Hazard Data (2000), ACGIH (2001)), it was referred to as Category 1.
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 sensitization: Classified as Category 1 on the basis that sensitization is reported in humans (CERI Hazard Data (2000)), and that this is listed as a respiratory sensitization in MOE Risk Assessment vol. 3 (2004), ACGIH (2001) and ALGY Society (2004). Skin sensitization : Classified as Category 1 on the basis that sensitization is reported in humans (CERI Hazard Data (2000)), and the development of skin sensitization is reported in mice and guinea pigs (CERI Hazard Data (2000), ACGIH (2001), and IUCLID (2000)).
5 Germ cell mutagenicity	Classification not possible	-	-	-	Although there are negative in vitro test results (CERI Hazard Data (2000)), it was decided that the substance could not be classified by the technical guidelines because there is no in vivo data.

6	Carcinogenicity	Classification not possible	-	-	-	No data available
7	Toxic to reproduction	Classification not possible	-	-	-	Classification not possible due to lack of data
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)	The substance was classified as Category 3 (airway irritant). Based on the reports of the substance causing irritation to nasal mucosa in rats (IUCLID (2000)) and of it causing strong irritation to airways in humans (CERI Hazard Data (2000)).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (lung)	Health hazard	Danger	causes damage to organs (lung) through prolonged or repeated	It was classified into Category 1 (lung) based on the report (CERI Hazard Data (2000)) of pulmonary edema within the guidance dose value of Category 1 in rat.
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 3	-	-	Harmful to aquatic life	It was classified into Category 3 from 24-hour EC50=83.7mg/L of Crustacea (Daphnia magna) (CERI Hazard Data, 2002).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since rapidly degrading (it decomposes 62% by the 28-day aerobic biodegradation using the living sewage of the OECD testing guideline 301E (CERI Hazard Data, 2002)), and less bio-accumulative (BCF<3,4 for 3-amino methyl- 3, 3, 5 - trimethyl cyclohexylamines, which is degradation product (Existing Chemicals Safety Check Data))).