

GHS Classification

ID163

Triglycidyl isocyanurate

CAS 2451-62-9

Date Classified: Aug. 18, 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 there is a data on its flash point.
8 Self-reactive substances and mixtures	Classification not possible	-	-	-	No data available
9 Pyrophoric liquids	Not applicable	-	-	-	Solid (GHS definition)
10 Pyrophoric solids	Not classified	-	-	-	Flash point: 200degC (ICSC (J), 1997)
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)	Category 3	Skull and crossbones	Danger	Toxic if swallowed	Based on rat oral LD50 = 950 mg/kg, 255 mg/kg (upper and lower limits given in CERH Hazard Data (2002)), and 715 mg/kg and 188 mg/kg (upper and lower limits of CIGAD 8 (1998)), it was set as Category 3 from LD50= 226mg/kg obtained by adapting the calculation formula.
1 Acute toxicity (dermal)	Not classified	-	-	-	Since data of rat percutaneous LD50 >3100mg/kg (CERH Hazard Data (2002)), >2000mg/kg (CIGAD 8 (1998) and that toxic symptoms which suggest Category 5 were not reported, it was set as the outside of Category.
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 3	Skull and crossbones	Danger	Toxic if inhaled	It was set as Category 3 based on rat inhalation (dust) LC50 = 650mg/m3 (CIGAD 8 (1998)).
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Based on the descriptions that TGIC operating workers show human skin irritation (NICNAS (1994)), and that mild moderate skin irritation on rabbits (CERH Hazard Data (2002), CIGADS 8 (1998), ACGIH (7th, 2001), and NICNAS (1994)), it was classified as Category 2.
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	There are descriptions that the TGIC operation workers have eye irritation in humans (NICNAS (1994)), and that severe irritation was indicated in rabbit eye (CERH Hazard Data (2002), NICNAS (1994), and ACGIH (7th, 2001)). But irreversible impacts were not reported in both humans and rabbits. So it was set to Category 2A.
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 because CERH Hazard Data (2001) describes that a worker who was using as a spray the paint containing 4% of this product developed asthma four years after starting the work, concluding that this product is the cause. Skin sensitization : Classified as Category 1 because CERH Hazard Data (2001), ACGIH (7th, 2001) and NICNAS (1994) describe the patch test of the patient who developed contact dermatitis by occupational exposure shows positive for this product, which is judged to induce any symptoms, and CERH Hazard Data (2001) describes that several experiments using guinea pigs show sensitization, and CIGAD 8 (1998) confirmed 25% and 60% positive rates in the two modified Magnusson and Kligman methods using guinea pigs.

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)	Although the dominant lethal tests in mice cited in CICAD 8(1998), ACGIH (7th, 2001) and CERl Hazard Data (2001) are negative for both oral administration and inhalation exposure, there are several positive results from the in vivo chromosome aberration tests using mouse spermatogonia in CICAD 8 (1998) and CERl Hazard Data (2001). So substance was classified as Category 1B.
6	Carcinogenicity	Classification not possible	-	-	-	No data available
7	Toxic to reproduction	Classification not possible	-	-	-	There is the description that there is no effect to fertility property and to embryo/offspring in the mating with normal male, though there is the mild low sperm count related with dose in the 13-week oral administration test to male mouse (feeding 100ppm as maximum). But the resultant information is limited. Since data is insufficient, it cannot classify.
8	Specific target organs/systemic toxicity following single exposure	Classification not possible	-	-	-	Insufficient data available.
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Since there is no evidence which it induces toxic symptoms with the repeated exposure to human and no data the repeated exposure experimentation in the animals for 14 days or more, it cannot be classified.
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)	Not classified	-	-	-	It carried out the outside of Category from 96-hour LC50>77mg/L of fishes (Zebrafish) (NICNAS, 2001).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (water solubility=1190mg/L(PHYSROP Database, 2005)) and acute toxicity is low.