

GHS Classification

ID576

Chloroprene

CAS 126-99-8

Date Classified: Feb. 20, 2007 (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 classified	-	-	-	UNRTDG Class: 3, Subsidiary risks Class: 6.1
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	Category 2	Flame	Danger	Highly flammable liquid and vapour	Category 2 because of its flash point: -20degC and initial boiling point: 59 to 59.4degC. Category 1 based on UNRTDG Class: 3, PG I.
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not classified	-	-	-	Not classified based on UNRTDG Class: 3, Subsidiary risks Class: 6.1, though containing unsaturated C=C bonds as chemical groups associated with self-reactive properties present
9 Pyrophoric liquids	Not classified	-	-	-	Flash point: 440degC (Hommel, 1991)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Not classified because of UNRTDG Class: 3, Subsidiary risks Class: 6.1
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	-	-	-	Organic compounds containing chlorine (but not oxygen 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 3	Skull and crossbones	Danger	Toxic if swallowed	It was set as Category 3 based on LD50= 251mg/kg obtained from the calculation using LD50 value of 2 examinations with rats (SIDS (2003)).
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	It was set as Category 2 based on rat LD50= 200mg/kg (SIDS (2003)).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 3	Skull and crossbones	Danger	Toxic if inhaled	The saturated vapor pressure concentration of this product is 264356ppm, and it is thought that all inhalation tests were done with vapor. It was classified as Category 3 based on LC50 = 8.2mg/L (2280ppm) calculated from rat LC50 values of 2 examinations which performed 4 hour exposure (SIDS (2003), IARC 19 (1979)).
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Mild to moderate erythema and edemas for rabbits and the thickening of the skin with repeated administration to the mouse are reported (SIDS (2003)). And dermatitis and alopecia were seen on humans (IARC 19 (1979)). It was classified as Category 2 because there is no finding of corrosivity.
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	Although conjunctivitis was produced with the rabbit, a duration of the problem has a statement that it was for ten days (SIDS (2003)). Moreover, irritation and pains were produced in the eye by vapor exposure in the rat (PATTY (5th, 2001)) But the stimulative grade is unknown. So it was set as Category 2A-2B based on these data.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	No data available

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)	The substance was classified as Category 1B. Because there are no multi-generation epidemiological data for humans and there are positive results from the in vivo dominant lethal tests in rodents (SIDS (2003), ACGIH (2001)).
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 2B according to IARC (IARC 71 (1999)), and into 2B according to an industrial hygiene academic society (JETOC specially data No.190 (2004)), and was classified into 2 according to EU (EU-Annex I (2006)). Newest EU was employed and it was set as Category 1B.
7	Toxic to reproduction	Category 1A	Health hazard	Danger	May damage fertility or the unborn child	There is the report that there is no disorder of reproductive potential of parent, embryotoxicity, and teratogenicity (ACGIH (2001), PATTY (5th, 2001), IARC 19 (1999)). But in many other reports, there is the description of inhibition of spermatogenesis of male rat (ACGIH (2001)), of the examples of mating impossibility and sterility of male rat and male mouse (ACGIH (2001)), and embryotoxicity as embryonic lethality etc. and malformation as hydrocephalus and meningoencephalocele etc. (ACGIH (2001), SIDS (2003), IARC 19 (1999)). There is the description that it occurs disorders of spermatogenesis and it is observed sperm morphological defect on humans, and there is a lot of natural abortion among the wives of chloroprene laborers (IARC 19 (1979)). It is classified into the Category 1A from these information.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (central nervous system, respiratory, liver, kidneys)	Health hazard	Danger	Cause damage to organs (central nervous system, respiratory, liver, kidneys)	Due to the descriptions that it shows the central nervous systems depressions in dosage range of guidance value in Category 1 in rat, mouse, and rabbit (IARC 19 (1979)), and that it shows central nervous system depressant action also in human (IARC 19 (1979)), it was classified into Category 1 (central nervous systems). Due to the descriptions that it causes liver damage in dosage range of the guidance value of Category 1 in rat (ACGIH (2001)), and that it causes damage to liver, lungs, and the kidney in human (IARC 19 (1979)), it was classified into Category 1 (liver, lungs, kidney). Due to the descriptions that it affects the airway in dosage range of the guidance value of Category 1 in rat (PATTY (5th, 2001)), and that it develops dyspnea by stimulates mucosa (IARC 19 (1979)), it was classified into Category 3 (airway stimulativeness). In addition, since there is no description of specific conditions about central nervous systems or the degree of inhibition and no description of related-anesthetic actions, it was classified into Category 1 (central nervous system). Category 1 (lung) and Category 3 (respiratory irritant) were classified into Category 1 (respiratory systems).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system, cardiovascular system, tooth, nerve of tooth, immune system, lung, liver, stomach); Category 2 (blood, Olfactory organ, respiratory organs)	Health hazard	Danger	Causes damage to organs (nervous system, cardiovascular system, tooth, nerve of tooth, immune system, lung, liver, stomach) through prolonged or repeated exposure; May cause damage to organs (blood, Olfactory organ, respiratory organs) through prolonged or repeated exposure	It was classified in Category 1 (nervous systems, cardiovascular systems) based on the statement that pathological changes were seen in the cardiovascular system and the nervous system in humans (IARC 19 (1979)) and the statement that there were complaints of neurological symptoms such as headache, giddiness, and insomnia, and a rapid pulse, and chest pain (IARC 19 (1979)). Since there was the statement of a dental corrosion, gingivitis, a periodontal membrane flame, and a decreased immunoreaction in humans (IARC 19 (1979)), it was classified in Category 1 (a tooth, periodontal tissue, immunity system). Since there are the statement that plasma cholinesterase reduction in activity was seen in humans (IARC 19 (1979)), and the statement that the necrobiosis in liver was seen in the amount of exposure of the guidance value range of Category 1 in the rat and a hamster and the organization obstacle of lungs in the rat (PATTY (5th, 2001)), it was classified in Category 1 (lungs, liver). It was classified in Category 1 (stomach) and Category 2 (blood, olfactory organ) based on the statement that the abnormalities in blood coagulation, the denaturation and fault formation of a sense-of-smell epithelium, and fault formation of the front gastric epithelium were seen in a rat in the amount of exposure of the guidance value range of Category 2 (PATTY (5th, 2001)), and the statement that gastrointestinal disorders were seen in humans (IARC 19 (1979)). Based on the statement of the inflammation of a nasal cavity in the amount of exposure of the guidance value range of Category 2 in a rat (PATTY (5th, 2001)), it was classified in 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)	Not classified	-	-	-	It carried out the outside of Category from 96-hour LC50=245mg/L of fishes (Bluegill) (SIDS, 2003).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (aqueous solubility = 874.9 mg/L (PHYSPROP Database, 2005)) and acute toxicity is low.