

GHS Classification

ID799

Dimethyl disulfide

CAS 624-92-0

Date Classified: Jun. 20, 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	-	-	-	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	It was classified as Category 2 (the acceptance criteria of GHS: flash point being less than 23 degC, and initial boiling point being more than 35 degC) based on 15 degC of flash point and 109.74 degC of initial boiling point.
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: >300degC (ICSC, 2004)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Not classified because of UNRTDG Class: 3
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 no oxygen, fluorine and chlorine.
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	SPECIES: Rat ENDPOINT: LD50 VALUE: 190 mg/kg REFERENCE SOURCE: PATTY (5th, 2001) vol.7
1 Acute toxicity (dermal)	Not classified	-	-	-	It was set as the outside of Category based on the report that there is no death at rabbit LD50 >2000mg/kg (IUCLID (2000)) (PATTY(5th, 2001) vol.7).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 3	Skull and crossbones	Danger	Toxic if inhaled	Since the saturated vapor pressure concentration of this product is 37871ppm, it is thought that all inhalation tests were done with vapor. It was classified as Category 3 based on the converted value for 4 hour exposure from rat LC50 = 805ppm (PATTY(5th, 2001) vol.7) .
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	It was classified as Category 2 based on the description that moderate to severe erythema and edema were observed on rabbits (ECETOC TR66 (1995), PATTY(5th, 2001) vol.7).
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Based on the statement that in the rabbit the eye irritations such as conjunctival injections, edema, and eye irritations are seen (PATTY(5th, 2001) vol.7, IUCLID (2000)), and recovered completely in 4 - 7 days (PATTY(5th, 2001) vol.7), it was set as Category 2B.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Not possible	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	Respiratory sensitization: No data. Skin sensitization: We classified it as Out Of Category based on two or more publications (PATTY(5th, 2001) vol.7, IUCLID (2000)) which describes that skin sensitization was not acknowledged in sensitization test with guinea pigs.
5 Germ cell mutagenicity	Not classified	-	-	-	Based on the fact (PATTY(5th, 2001) vol.7) that we found no results of human over generation epidemiology, human over generation mutagenicity test, and the human in vivo productive cell mutagenicity test, and we found the negative result for the in vivo micronucleus test with the mouse. So we classified it as Out Of Category.
6 Carcinogenicity	Classification not possible	-	-	-	Classification not possible due to lack of data

7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	It was classified into category 2 based on that growth delay and teratogenicity of a child were observed in the dose (50 ppm) causing toxicity to parental animals (PATTY(5th, 2001) vol.7) .
8	Specific target organs/systemic toxicity following single exposure	Classification not possible	-	-	-	Insufficient data available.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs, Olfactory organ); Category 2 (blood)	Health hazard	Danger; Warning	Causes damage to organs (respiratory organs, Olfactory organ) through prolonged or repeated exposure; May cause damage to organs (blood) through prolonged or repeated	It was classified into Category 1 (respiratory organs, olfactus organ) based on the statement in rat of the exposure dosage of guidance value within the limits of Category 1, dysplasia of respiratory mucosa in a nasal cavity, withering and cell deletion of olfactory sensory epitheliums were observed (PATTY(5th, 2001) vol.7, IUCLID (2000)). At the dosage in the guidance value range of Category 2 (0.2–1.0 mg/L), the reduction of erythrocyte count, the hemoglobin concentration decrease, and the decrease of a hematocrit value (PCV value) were seen in the rat (IUCLID (2000)). Although at a higher dose, the similar changes were observed also with the rabbit, and it was accompanied by increased reticulocyte counts and increased hematopoietic (PATTY(5th, 2001) vol.7). It is presumed that cause of the effect on erythropoiesis and heme synthesis is inhibition to uptake of Fe to reticuloendothelial system in humans (IUCLID (2000)). Since the above, it is thought that it was the anemia by effects to blood and was classified into Category 2 (blood).
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 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 96-hour LC50=1.1mg/L of fishes (<i>Oryzias latipes</i>) (MOE eco-toxicity tests of chemicals, 1998).
11 Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Classified into Category 2, since acute toxicity was Category 2, and not rapidly degrading (BOD: 0% (existing chemical safety inspections data)), though supposed less bio-accumulative (log Kow=1.77(PHYSROP Database, 2005)).