

GHS Classification

ID904

Styrene, methyl-

CAS 25013-15-4

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 3	Flame	Warning	Flammable liquid and vapour	Flash point: >=23degC and <=60degC, UNRTDG Class: 3, PGIII
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not classified (with stabilizer)	-	-	-	Classified in UNRTDG Class: 3
9 Pyrophoric liquids	Not classified	-	-	-	UNRTDG Class: 3
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	The test suitable for a liquid state substance has not been established. It is classified into the 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	-	-	-	Containing no -O-O- structure
16 Corrosive to metals	Not classified	-	-	-	UNRTDG Class: 3

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 5	-	Warning	May be harmful if swallowed	It was classified to category 5 based on the following lower value. Rat LD50 value: 4000mg/kg (ACGIH 7th, 2001, PATTY 4th, 1994, NTP TR 375, 1990) and 5700mg/kg (PATTY 4th, 1994).
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on rat minimum lethal dose: 4500mg/kg (RTECS, 2005), it was set as the outside of Category.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	-	-	-	Based on the description that death was not observed in the rat 8 hour inhale test of 2500ppm (4 hour equivalent: 17.05mg/kg, saturated vapor) IUCLID (2000), it is presumed to be either Category 4, Category 5, or out of Category. But it cannot be decided, and thus it cannot be classified.
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 set as Category 2 from description that the skin of the humans was stimulated (NTP TR 375 (1990)), and from description that irritation was admitted by the test applied to the skin of the rabbit (IUCLID (2000), RTECS (2005)).
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	We classified it as Category 2A-2B based on the descriptions that it stimulates the human eyes (IARC 60 (1994), and ICSC (J) (1996)).
4 Respiratory/skin sensitization	respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	Respiratory organ: No data. Skin: We found only one case in IARC 60 (1994) and other data could not be found and it did not bear the criteria, therefore we presupposed that we could not classify it for the insufficiency of data.
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	There is positive result (IARC 60, 1994, NTP TR 375, 1990) by the micronucleus test which uses the mouse red corpuscles, which are the in vivo mutagenicity tests using a somatic, there is no positive result by the in vivo genotoxicity study using a germ cell. So it is set as Category 2.

6	Carcinogenicity	Not classified	-	-	-	Since it was classified into a group 3 in IARC (IARC 60, 1994) and A4 in ACGIH (7th, 2001), it was considered as the outside of Category.
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, narcotic effects)	Exclamation mark	Warning	may cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation, narcotic effects)	From description in ACGIH (7th, 2001), PATTY (4th, 1994), and NTP TR 375 (1990) that upper respiratory irritant was seen in human exposure, and from description in NTP TR 375 (1990) that the central nervous system depressions is seen by higher level of human exposure, it was set as Category 3 (respiratory irritation, anesthesia action).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system); Category 2 (liver, respiratory organs, kidneys)	Health hazard	Danger; Warning	Causes damage to organs (nervous system) through prolonged or repeated exposure; May cause damage to organs (liver, respiratory organs, kidneys) through prolonged or repeated exposure	We classified it as Category 1 (nervous systems) based on the description that the effect on the central nervous system was observed in human occupational exposure examples (IARC 60 (1994)). Moreover, based on the description that the effects on the liver and on the respiratory system were observed with the concentration a little exceeding the guidance value range of Category 2 in the 15-day inhalation exposure test using the rat (NTP TR 375 (1990)), and based on the descriptions that increased development of nephropathy was observed with concentration of the guidance value range of Category 2 in the 13-week inhalation exposure test using the rat (ACGIH (7th, 2001) and NTP TR 375 (1990)), we classified it as Category 2 (liver, respiratory organs, kidney).
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 96-hour LC50=23.4mg/L of fishes (Fathead minnows) (IUCLID, 2000).
11 Hazardous to the aquatic environment (chronic)	Category 3	-	-	Harmful to aquatic life with long lasting effects	Classified into Category 3, since acute toxicity was Category 3 and supposed not rapidly degrading (BIOWIN), though less bio-accumulative (BCF=35 (IUCLID, 2000)).