

GHS Classification

ID868

Benzene, trimethyl-

CAS 25551-13-7

Date Classified: Sep. 1, 2005 (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
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: 450-550degC (ICSC (J), 2002)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Test methods applicable to liquid substances are not 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	-	-	-	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	Classification not possible	-	-	-	No data available

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	-	-	-	SPECIES: Rat ENDPOINT: LD50 VALUE: 8970 mg/kg REFERENCE SOURCE: RTECS (2005), HSDB (2005)
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
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)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Since it had descriptions that there were primary skin irritation (animal species were unknown) (ACGIH (7th, 2001)), moderate irritation to a rabbit (RTECS (2005)). And also skin irritation as human impact without the concrete case report were shown (HSDB (2005), HSFS (2003), and SITTIG (4th 2002)). So it was set as Category 2.
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	There is description that there is mild irritation to a rabbit (RTECS (2005)), the description that although the concrete case report etc. are not shown, as human effects, redness and pains in the eyes are started (ICSC (J) (2002)), and the description that there are eye irritations also (HSFS (2003), SITTIG (4th 2002)). So it was rset as Category 2B.
4 Respiratory/skin sensitization	respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	No data available
5 Germ cell mutagenicity	Classification not possible	-	-	-	No data available
6 Carcinogenicity	Classification not possible	-	-	-	No data available

7	Toxic to reproduction	Classification not possible	-	-	-	No data available
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)	ACGIH (7th, 2001) has description showing "it was thought that the potential of the systemic poisoning by transdermal absorption was low." As impact on humans, there are descriptions in ICSC (J) (2002) that inhalation exposure or oral ingestion cause distraction, cough, giddiness, drowsy, headache, pharyngeal pain, vomiting, and respiratory tract stimulus, and description that the central nervous systems might be affected. HSDB (2005) has description "it is mildly toxic by ingestion," and HSFS (2003) and SITTIG (4th 2002) have description "giddiness and the head unsteady, and consciousness may be lost by inhalation exposure." Furthermore, SITTIG (4th 2002) has description "an airway is stimulated by inhalation exposure and may show the similar symptoms as described in ICSC (J) and (2002) " as well. Based on the above, it was judged that there were respiratory irritant and an anesthetic actions, and all were set as
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (skin, respiratory organs, blood, central nervous system)	Health hazard	Warning	May cause damage to organs (skin, respiratory organs, blood, central nervous system) through prolonged or repeated	Based on the description that cracks because of defatting of the skin are caused by repeated skin exposures to the humans (ICSC (J), (2002), SITTIG (4th, 2002)), and the description that by the repeated inhalation exposures (ICSC (J), (2002), SITTIG (4th, 2002), HSFS (2003), there are lung irritation or chronic bronchitis, coagulation effects, and the effects on the central nerves system such as headaches and nervousness etc., it was classified into Category 2 all, since skin, respiratory systems, blood, and central nervous systems were considered to be target organs
10	Aspiration hazard	Category 1	Health hazard	Danger	May be fatal if swallowed and enters airways	Trimethyl benzene is a hydrocarbon. There is a description that among the three isomers, the viscosity of 1, 2, 4-trimethyl benzene and 1, 3, 5-trimethyl benzene are 0.730mPas (30 degrees C) and 1.154mPas (20 degrees C), respectively (Lange (14th, 1992)). Based on these each viscosity data and on the fact that the densities of these 3 isomers are smaller than 0.9, it is judged that the dynamic viscosity of trimethyl benzene at 40 degrees C (the mixture of three isomers) is fully less than 20.5mm ² /s. Moreover, there is a description that [there is a risk of chemical pneumonia by aspiration if the fluid is swallowed](ICSC (J) (2002)), and 1, 2, 3-trimethyl benzene and 1, 3, 5-trimethyl benzene are explained. Furthermore, there is the description that [bronchitis or chemical pneumonia will be caused if the liquid enters into the lungs](SITTIG (4th, 2002)), and we classified it as Category 1 based on these descriptions.

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=5400microg/L of Crustacea (glass shrimp) (AQUIRE, 2003).
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 (by analogy with the decomposition by BOD of 1, 3, 5-trimethylbenzene: 0% (existing chemical safety inspections data)), though less bio-accumulative (BCF=328 of 1, 3, 5-trimethylbenzene (existing chemical safety inspections data)),