

GHS Classification

ID895

Toluene, 4-tert-butyl-

CAS 98-51-1

Date Classified: Oct. 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	Classification not possible (Category 3 or Category 4)	Flame	Warning	Flammable liquid and vapour; Combustible liquid	Available flash point data are distributed in both Category 3 and 4. Therefore, if the flash point is not measured with a real sample, it cannot be judged. The acceptance criteria are as follows: Category 3: 23 degC<= flash point <=60 degC; Category4: 60 degC< flash point <=93 degC
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: 510degC (Hommel, 1991 Card No.453)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	UNRTDG 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 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 6.1

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 4	Exclamation mark	Warning	Harmful if swallowed	Rat LD50 value: 1500mg/kg (ACGIH 7th, 2001) and 1.8 mL/kg (reduced values of 1550mg/kg) (PATTY 4th, 1994). Based on the data above, it was classified to category 4.
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on rabbit LD50 value: 19.6mL/kg (reduced value = 16880mg/kg) (PATTY 4th, 1994), it was set as the outside of Category.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	Based on Rat LC50 (4 hours) value: 248ppm (equivalent: 1.5 mg/L) (ACGIH 7th, 2001, PATTY 4th, 1994), it could be judged from vapor pressure as the steam with almost no mist. And it was classified by the ppm concentration standard as Category 2.
1 Acute toxicity (inhalation: dust, mist)	Category 4	Exclamation mark	Warning	Harmful if inhaled	Category 4 because of "SPECIES: Rat; ENDPOINT: LC50(1hr.); VALUE: 934ppm(4hr.); VALUE:1.41mg/L"(ACGIH 7th, 2001)
2 Skin corrosion / irritation	Classification not possible	-	-	-	Since change which corresponded to basis of irritation in the skin irritation test using the rabbit indicated was not admitted (RTECS (2005) and IUCLID (2000)), there was possibility besides Category. But there was no data which negated hazard clearly in Priority1, it was presupposed that it could not be classified.
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 description that the moderate irritant property on the conjunctiva was acknowledged in the test applied to the eyes (ACGIH (7th, 2001)).
4 Respiratory/skin sensitization	respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	Respiratory organ: No data. Skin: Although there was description that sensitizing property was not acknowledged in Maximization test which used the guinea pigs in IUCLID (2000), we presupposed that we could not classify it since there were no data which negates hazardousness clearly in Priority 1.
5 Germ cell mutagenicity	Classification not possible	-	-	-	Classification not possible due to lack of data
6 Carcinogenicity	Classification not possible	-	-	-	No data available
7 Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the unborn child	It was considered as Category 1B based on the description that the influence of the pathology histology inspection results of sperm analysis results, a testis, and an epididymis and the low value of the conception rate were observed in the reproduction toxicity studies using the rat (the Health, Labor and Welfare Ministry reports (2005)).

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) that stimulation of nasal mucosa and dizziness were seen in human exposure, it was judged that it had respiratory irritant and anesthetic actions, and it was set as Category 3 (respiratory irritant, anesthetic actions).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system, blood, liver, heart); Category 2 (testes)	Health hazard	Danger; Warning	Causes damage to organs (nervous system, blood, liver, heart) through prolonged or repeated exposure; May cause damage to organs (testes) through prolonged or repeated	Based on the description that giddiness, headache, tremor, arrhythmia, anemia, jaundice was observed in human occupational exposure, and based on the description that the inhalation exposure test using the rats, influence on liver, blood, and nervous system was acknowledged in the guidance value range of Category 1 (ACGIH (7th, 2001)), it was classified to be Category 1 (nervous system, blood, liver, heart). Moreover, since the effect on the testes was observed with the dose in the guidance value range of Category 2 in the oral administration test for 28 days using the rat (the Health, Labor and Welfare Ministry Reports (2005)), we classified it to be Category 2 (testicular).
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 48-hour EC50=1.5mg/L of Crustacea(Daphnia magna) (MOE eco-toxicity tests of chemicals, 1999).
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: 52% (existing chemical safety inspections data)), though less bio-accumulative (BCF=1.2 of the pivalic acid which was a change product (existing chemical safety inspections data)).