

GHS Classification

ID43

CAS 95-53-4

Physical Hazards

o-Toluidine

Date Classified: Jun. 20, 2006 (Environmental Hazards: Mar. 31, 2006)

Reference Manual: GHS Classification Manual (Feb. 10, 2006)

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Explosives	Not applicable	—	—	—	Containing no chemical groups with explosive properties
2 Flammable gases	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
3 Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
5 Gases under pressure	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
6 Flammable liquids	Category 4	—	Warning	Combustible liquid	The flash point is 85degC (c.c.) (NFPA (13th, 2002)) which is classified into Category 4.
7 Flammable solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not classified	—	—	—	Not pyrophoric when in contact with air at ordinary temperatures: the auto-ignition temperature is 482degC (ICSC, 2004)
10 Pyrophoric solids	Not applicable	—	—	—	Classified as "liquid" according to 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	—	—	—	Containing no 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	—	—	—	Classified as "liquid" according to GHS definition
15 Organic peroxides	Not applicable	—	—	—	Organic compounds containing no "-O-O-" structure
16 Corrosive to metals	Not classified	—	—	—	Classified into Division 6.1 (UN Recommendations on the Transport of Dangerous Goods)

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	Based on the LD50 value of 698mg/kg calculated from the testing data of rat LD50 (oral route) of 670mg/kg, 940mg/kg (CERI Hazard Data 97-21 (1998)) and 900mg/kg (CICAD No.7 (1998)).
1 Acute toxicity (dermal)	Category 5	—	Warning	May be harmful in contact with skin	Based on the rabbit LD50 (dermal route) value of 3,235mg/kg representing the lower of the two testing data, 3,235mg/kg (CICAD No.7 (1998)) and 3,250mg/kg (CERI Hazard Data 97-21 (1998)).
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "liquid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: vapour)	Category 3	Skull and crossbones	Danger	Toxic if inhaled	Based on the rat LD50 value of 3.86mg/L (4 hours), calculated from the testing data of rat LC50 (inhalation of vapour) of 862ppm (4 hours) (RTECS (2006)) was lower than 90% of the saturated vapour concentration (2,000ppm) under a saturated vapour pressure of 0.2kPa (20degC) (CERI-NITE Hazard Assessment No.202 (2004)), the substance was considered as "vapour containing substantially no mist" and was classified based on standard values expressed in ppm.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
2 Skin corrosion / irritation	Category 3	—	Warning	Causes mild skin irritation	Based on the description in the report on rabbit skin irritation tests (CERI-NITE Hazard Assessment No.202 (2004)): "Slightly irritating to the skin" (though it is unclear whether the results are those of 4-hour application).
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	Based on the evidence of "eye irritation" of unknown degree (CERI-NITE Hazard Assessment No.202 (2004)). The substance should be placed in Category 1A from the viewpoint of safety, if further subclassification is needed.
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) -	Respiratory sensitization: No data available Skin sensitization: No data available
5 Germ cell mutagenicity	Not classified	—	—	—	Based on the absence of multi-generation mutagenicity tests and germ cell mutagenicity tests in vivo, and negative data on somatic cell mutagenicity tests in vivo (micronucleus tests and chromosome aberration tests), described in CERI-NITE Hazard Assessment No.202 (2004), IARC 77 (2000) and NTP DB (Access on Feb., 2006).
6 Carcinogenicity	Category 1B	Health hazard	Danger	May cause cancer	Due to the fact that the substance is classified as Category R by NTP (2005), Group 2A by IARC (2000) and Category 2A by the Japan Society for Occupational Health.
7 Toxic to reproduction	Classification not possible	—	—	—	Insufficient data available
8 Specific target organs/systemic toxicity following single exposure	Category 1 (central nervous system, blood system, kidneys, bladder)	Health hazard	Danger	Causes damage to organs (central nervous system, blood system, kidneys, bladder)	Based on the human evidence including "headache, fatigue, dizziness or nausea" (CERI-NITE Hazard Assessment No.202 (2004)), "severe dyspnea, perspiration, cyanosis and hematuria" (CERI Hazard Data 97-21 (1998)), "causes irritation of the kidney and bladder, inducing hematuria" (MOE Risk Assessment vol.3 (2004)).

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (blood system)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (blood system)	Based on the human evidence including "methemoglobinemia (6-19%)" (DFGOT vol.3 1992), and the evidence from animal studies including "congestion of the spleen, increased extramedullary hematopoiesis, hemosiderin deposition and increased bone marrow cells" (CERI-NITE Hazard Assessment No.202 (2004)), "methemoglobinemia, erythropenia and reticulocytosis" (CERI Hazard Data 97-21 (1998)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 2.
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 hours EC50=8mg/L of the crustacea (Daphnia magna) (CERI Hazard Data, 1997).
11 Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Although acute toxicity was Category 2 and the bio-accumulation potential was low (log Kow=1.32(PHYSPROP Database, 2005)), since there was no rapidly degrading (the decomposition by BOD: 5%(Existing Chemical Safety Inspections Data)), it was classified into Category 2.