

## GHS Classification

**ID44**

**CAS 106-49-0**

**Physical Hazards**

**p-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 "solid" according to GHS definition
3 Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable	—	—	—	Classified as "solid" according to GHS definition
5 Gases under pressure	Not applicable	—	—	—	Classified as "solid" according to GHS definition
6 Flammable liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
7 Flammable solids	Not classified	—	—	—	Classified as "flammable" by ICSC (2004). Classified into Division 6.1 by UN Recommendations on the Transport of Dangerous Goods (UN#3451 Toluidine (solid))
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
10 Pyrophoric solids	Not classified	—	—	—	Not pyrophoric when in contact with air at ordinary temperatures: the auto-ignition temperature is 482degC (ICSC, 2004)
11 Self-heating substances and mixtures	Classification not possible	—	—	—	Test methods applicable to liquid substances are not available (melting point: 44-45degC (ICSC, 2004), test temperature: 140degC)
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	—	—	—	Classified as "solid" according to GHS definition
14 Oxidizing solids	Not applicable	—	—	—	Organic compounds containing no oxygen, fluorine and chlorine
15 Organic peroxides	Not applicable	—	—	—	Organic compounds containing no "O-O-" structure
16 Corrosive to metals	Not classified	—	—	—	Classified into Division 6.1 (UN#3451 Toluidine (solid)) (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 465mg/kg calculated from the testing data of rat LD50 (oral route) of 336mg/kg, 794mg/kg (CERI Hazard Data 99-6 (2000)), 760mg/kg and 656mg/kg (CERI-NITE Hazard Assessment No.203 (2004)).
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Based on the rabbit LD50 (dermal route) value of 890mg/kg (CERI-NITE Hazard Assessment No.203 (2004)).
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "solid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	Insufficient data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Based on the description in the report on rabbit skin irritation tests (CERI Hazard Data 99-6 (2000)): "The substance induced moderate to severe irritation of the skin" (though the results are not those of 4-hour application).
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Based on the description in the report on a 1-hour inhalation study in rats (CERI Hazard Data 99-6 (2000)): "The substance produced irritation of the eye and upper respiratory tract." Also based on the evidence of "severe irritation" from a 24-hour eye irritation study in rabbits (CERI Hazard Data 99-6 (2000)). The substance is thus considered severely irritating to the eye.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Category 1	(Respiratory sensitization) – (Skin sensitization) Exclamation mark	(Respiratory sensitization) – (Skin sensitization) Warning	(Respiratory sensitization) – (Skin sensitization) May cause allergic skin reaction	Respiratory sensitization: No data available Skin sensitization: Based on the description in the report on guinea pig skin sensitization tests performed based on the Buehler Method (CERI-NITE Hazard Assessment No.203 (2004)): "erythema was observed; sensitization, positive." The substance is thus considered a sensitizing skin irritant.
5 Germ cell mutagenicity	Classification not possible	—	—	—	No data are available on multi-generation mutagenicity tests, germ cell mutagenicity tests in vivo and somatic cell mutagenicity in vivo, while somatic cell mutagenicity tests in vivo (DNA damage tests) show positive results, which are supported by mutagenicity tests in vitro (positive for chromosome aberration; negative for reverse mutation) (CERI-NITE Hazard Assessment No.203 (2004), DFGOT Vol.3 (1992) and CERI Hazard Data 99-6 (2000)). However, these positive data are considered to be of a low reliability, and hence cannot serve as a basis for classification into
6 Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer	Due to the fact that the substance is classified as Category A3 by ACGIH (2001).
7 Toxic to reproduction	Classification not possible	—	—	—	No 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 "methemoglobinemia and hematuria" (ACGIH (7th, 2001)), "methemoglobinemia and hematuria, headache, fatigue, dizziness or nausea" (CERI-NITE Hazard Assessment No.202 (2004)), "methemoglobin formation, headache, fatigue, dyspnea, neuropathy, irritation of the kidney and bladder inducing hematuria" (MOE Risk Assessment vol.3 (2001)).

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: "20 subjects (6–19%) were diagnosed with methemoglobinemia" (DFGOT vol.3 (1992).
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 1	Environment	Warning	Very toxic to aquatic life	It was classified into Category 1 from 48 hours EC50=0.12mg/L of the crustacea (Daphnia magna) (CERI/NITE Hazard Assessment Report, 2004).
11 Hazardous to the aquatic environment (chronic)	Category 1	Environment	Warning	Very toxic to aquatic life with long lasting effects	Although acute toxicity is Category 1 and bio-accumulation is low (BCF<13(Existing Chemical Safety Inspections Data. )), since there was no rapidly degrading (the decomposition by BOD: 32%(Existing Chemical Safety Inspections Data)), it was classified into Category 1.