

GHS Classification

ID111

CAS 106-47-8

Physical Hazards

p-Chloroaniline

Date Classified: Aug. 18, 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 (2002). Classified into Division 6.1 (UN#2018 (Chloroaniline (solid))) (UN Recommendations on the Transport of Dangerous Goods)
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 685degC (ICSC, 2002)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Test methods applicable to liquid substances are not available - melting point: 69-72.5degC, 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 chlorine (but not oxygen and fluorine), with the chlorine bound to carbon and hydrogen (but not to other elements)
15 Organic peroxides	Not applicable	-	-	-	Organic compounds containing no "-O-O-" structure
16 Corrosive to metals	Classification not possible	-	-	-	Test methods applicable to solid substances are not available

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 3	Skull and crossbones	Danger	Toxic if swallowed	Based on the testing data of rat LD50 (oral route) of 300mg/kg (MOE Risk Assessment vol. 2 (2003)).
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Based on the testing data of rabbit LD50 (dermal route) of 360mg/kg (CERI Hazard Data 2000-30 (2001)).
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)	Category 4	Exclamation mark	Warning	Harmful if inhaled	Based on the rat LC50 value of 448ppm, calculated from the testing data of rat LC50 (4-hour inhalation) of 2.34mg/L (MOE Risk Assessment vol. 2 (2003)) exceeded the saturated vapour concentration (20ppm) under a saturated vapour pressure of 2.0kPa (20degC), the substance was classified based on the mist/dust classification.
2 Skin corrosion / irritation	Not classified	-	-	-	Based on the description in the report on rabbit skin irritation tests (4-hour application) performed in accordance with OECD Guidelines (CICAD 48 (2003)): Non-irritating .
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Based on the description in the report on rabbit eye irritation tests performed in accordance with OECD Guidelines (CICAD 48 (2003)): slightly irritating.
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 irritation tests (CICAD 48 (2003)) - Single injection adjuvant tests (conducted based on the maximization method) show 50% positive and 30% positive. The substance is considered to cause skin sensitization.
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects	Based on the absence of data on multi-generation mutagenicity tests and germ cell mutagenicity tests in vivo, positive data on somatic cell mutagenicity tests in vivo (micronucleus tests) and the absence of data on germ cell genotoxicity tests in vivo, described in CICAD 48 (2003).
6 Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer	Due to the fact that the substance is classified as Group 2B by IARC (1993).
7 Toxic to reproduction	Classification not possible	-	-	-	Insufficient data available
8 Specific target organs/systemic toxicity following single exposure	Category 1 (blood system, central nervous system)	Health hazard	Danger	Causes damage to organs (blood system, central nervous system)	Based on the human evidence including "methemoglobinemia, cyanosis, lethargy, somnolency, headache, dizziness" (CERI Hazard Data 2000-30 (2001)), and the evidence from animal studies including "cyanosis, an increase in methemoglobin levels, formation of Heinz bodies (CERI Hazard Data 2000-30 (2001)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.

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 "cyanosis, an increase in methemoglobin/sulfhemoglobin levels" (CICAD 48 (2003)) and the evidence from animal studies including "cyanosis, formation of Heinz bodies, a significant decrease in hemoglobin and red blood cell counts" (CICAD 48 (2003)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.
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=0.31mg/L of the crustacea (Daphnia magna) (MOE eco-toxicity tests of chemicals (2000) and others.).
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 (log Kow=1.83(PHYSPROP Database, 2005)), since there was no rapidly degrading (the decomposition by BOD: 0%(Existing Chemical Safety Inspections Data)), it was classified into Category 1.