

## GHS Classification

**ID30**

**Cyclohexylamine**

**CAS 108-91-8**

Date Classified: Jun. 20, 2006 (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	—	—	—	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 3	Flame	Warning	Flammable liquid and vapour	The flash point is 28degC (c.c.) (ICSC (2002)). Classified into Classes 3 and 8 (UN#2357) (UN Recommendations on the Transport of Dangerous Goods).
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 293degC (ICSC, 2003)
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	Classification not possible	—	—	—	Cannot be classified due to lack of data, though it "acts on aluminum, copper and zinc" according to ICSC (2003). Classified into "Class 8: corrosive substances" by the UN Recommendations on the Transport of Dangerous Goods (UN#2357). However, the category includes skin corrosivity, and hence does not allow the metal corrosivity of cyclohexylamine to be determined.

## 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 rat LD50 (oral route) value of 156mg/kg representing the lower of the two testing data, 800mg/kg and 156mg/kg (CERI Hazard Data 2001-54 (2002)).
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Based on the rabbit LD50 (dermal route) of 277mg/kg (CERI Hazard Data 2001-54 (2002)).
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 LC50 (4 hours) value of 2,000ppm, calculated from the testing data of rat LC50 (16-hour inhalation exposure) of 1,000ppm (CERI Hazard Data 2001-54 (2002)), was lower than 90% of the saturated vapour concentration (2,480ppm) under a saturated vapour pressure of 250Pa (20degC), the substance is 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 1A-1C	Corrosion	Danger	Causes severe skin burns and eye damage	Based on the description in the report on rabbit skin irritation tests (CERI Hazard Data 2001-54 (2002)): "Corrosive" (though exposure duration is unknown). Also due to the fact that the substance is assigned to "C; R34: Corrosive" by EU Risk Phrase. Although classified into Categories 1A-1C, the substance should be placed in Category 1A from the viewpoint of safety, if further subclassification is needed.
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	Based on the description in the report on rabbit eye irritation tests (CERI Hazard Data 2001-54 (2002)): "Corrosive."
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	Category 1B	Health hazard	Danger	May cause genetic defects	Based on positive data on multi-generation mutagenicity tests (dominant lethal tests) and germ cell mutagenicity tests in vivo (chromosome aberration tests), described in IARC 73 (1999), CERI Hazard Data 2001-54 (2002) and MOE Risk Assessment vol.3 (2004).
6 Carcinogenicity	Not classified	—	—	—	Due to the fact that the substance is classified as Category A4 by ACGIH (2001) and Group 3 by IARC (1987).
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the evidence of adverse effects on the testes and decreased weaning indices, described in CERI Hazard Data 2001-54 (2002) and MOE Risk Assessment vol.3 (2004), although no data are available on parental toxicity.

8	Specific target organs/systemic toxicity following single exposure	Category 1 (blood system, nervous system, respiratory organs) Category 3 (narcotic effects)	Health hazard and Exclamation mark	Danger Warning	Causes damage to organs (blood system, nervous system, respiratory organs) (Narcotic effects) May cause drowsiness or dizziness	Based on the human evidence including "a slight degree of methemoglobin formation and sympathetic nervous stimulation" (CERI Hazard Data 2001-54 (2002)), "dizziness, somnolency, anxiety and nausea were observed in subjects, one of whom exhibited unintelligible articulation, vomiting and mydriasis" (MOE Risk Assessment vol.3 (2004)), the evidence from animal studies including "very strong irritation" (CERI Hazard Data 2001-54 (2002)). 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, thyroid gland, heart, kidneys, respiratory organs) Category 2 (testes)	Health hazard	Danger Warning	Causes damage to organs through prolonged or repeated exposure (blood system, thyroid gland, heart, kidneys, respiratory organs) May cause damage to organs through prolonged or repeated exposure (testes)	Based on the evidence from animal studies including "decreases in hemoglobin concentration/RBC count, reticulocytosis, hypothyroidism, fatty/granule degeneration of myocardium and kidney, inflammatory changes in the trachea and lung" (CERI Hazard Data 2001-54 (2002)), "focal vacuolation of Sertoli cells and degeneration/loss of sperm mother cells" (CERI Hazard Data 2001-54 (2002)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1 (blood system, heart, kidneys, respiratory organs) and Category 2 (testes).
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 3	-	-	Harmful to aquatic life	It was classified into Category 3 from 96 hours LC50=33mg/L of the fish ( <i>Oryzias latipes</i> ) (MOE eco-toxicity tests of chemicals, 1997).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since there was rapidly degrading (the decomposition by BOD: 61.6% (Existing Chemical Safety Inspections Data)) and the bio-accumulation was low (log Kow=1.49 (PHYSPROP Database, 2005)), it was classified into Not classified.