

GHS Classification

ID764

Cyclohexanone

CAS 108-94-1

Date Classified: Feb. 20, 2007 (Environmental Hazards: Feb. 10, 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	Category 3	Flame	Warning	Flammable liquid and vapour	Flash point: 43degC (Hommel, 1991).
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not classified	-	-	-	Classified in UNRTDG No.2915, Class: 3, PGIII
9 Pyrophoric liquids	Not classified	-	-	-	Flash point: 420degC (Hommel, 1991)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (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	-	-	-	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 oxygen (but not chlorine and fluorine) chemically bonded only to carbon (but not to other elements).
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	There are no chemical groups associated with peroxide present in the molecule.
16 Corrosive to metals	Not classified	-	-	-	Not classified because of UNRTDG No.1915, Class: 3, PG III

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	Category 4 based on SPECIES: Rat; ENDPOINT: LD50; VALUE: VALUE:1544mg/kg;
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	It was set as Category 3 from rabbit LD50= 947mg/kg (DFGOT, 1998-ATTY, 2001).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 3	Skull and crossbones	Danger	Toxic if inhaled	Based on Saturated vapor pressure concentration = 5700ppm (25degC) (Howard, 1997), rat LC50 = 2450ppm (ACGIH, 2003) was judged to be steam exposure value, and it was classified as Category 3.
1 Acute toxicity (inhalation: dust, mist)	Not classified	-	-	-	Based on saturated vapor pressure pressures concentrations = 5700ppm (25degC) (Howard, 1997), rat LC50 = 8000ppm = 32.1mg/L (the collection of CERi data, 2000) was judged as the value by mist exposure and set as the outside of
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	It was classified as Category 2 based on the description "there is moderate stimulativeness" in CERi Hazard Data (2000).
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Based on the statement of "the human eye irritations"(PATY (5th, 2001) and "the severe irritations in the eye of a rabbit"(CERi Hazard Data (2000), it was set as Category 2A.
4 Respiratory/skin sensitization	respiratory sensitization: Classification not possible; Skin sensitization: Not classified	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	Respiratory sensitization: No data. Skin sensitization: Although a case of one human is reported (IARC (Vol71, 1999), ACGIH (2003)), since sensitization has not been identified in animals it was put outside of the Category.
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Since it gave negative in the dominant lethality examination and positive in the bone marrow cells chromosomal aberration test in the rat (both of them were in CERi Hazard Data(2000)), we classified it as Category 2.

6	Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	IARC classifies into 3 (1999) and ACGIH classifies into A3 (2003). It was set to category 2 based on the classification of ACGIH which time of assessment is the latest.
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	In any reports, reproductive toxicity is not reported and it is indicated that there is no teratogenicity in any case. However, in high concentration of exposure, adverse effect of child under indecement of the adverse effect to maternal is reported(ACGIH(2003);DFGOTvol.10 (1998)). Therefore, it was classified into Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (liver, spleen, central nervous system); Category 2 (lung); Category 3 (narcotic effects, respiratory tract irritation)	Health hazard	Danger	Cause damage to organs (liver, spleen, central nervous system); May cause damage to organs (lung); May cause respiratory irritation or may cause drowsiness and dizziness (narcotic effects, respiratory tract irritation)	The effects on the liver is reported by humans (DFGOT, vol.10, 1998), it was set to Category 1 (liver). by that which . Spleen effects in rat (4250ppm = 19mg/L) (PATTY, 5th, 2001) was compared with the guidance value, and set to Category 1 (spleen). Moreover, the influence on a central nervous systems (mouse (ACGIH, 2003)) is estimated by a guidance value, and it was se to Category 1 (central nervous system). And the influence on lungs (mouse (ACGIH, 2003)) was set as Category 2 (lungs). Moreover, there is the statement that anesthesia influence in an animal (ACGIH, 2003; PATTY, 5th, 2001; DFGOT, vol10, 1998)) and human respiratory irritation (ACGIH, 2003), it is classified into Category 3 (an anesthetic actions, respiratory irritation).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (kidneys, liver, central nervous system)	Health hazard	Danger	Causes damage to organs (kidneys, liver, central nervous system) through prolonged or repeated	It was classified into Category 1 (the kidney, liver, central nervous system) according to that effects to the kidney, liver, central nervous system is observed in humans (PATTY5th, 2001).
10	Aspiration hazard	Category 2	Health hazard	Warning	May be harmful if swallowed and enters airways	In this survey, no data of the aspiration breathing apparatus hazards, however, the dynamic viscosity is considered to be (40 degrees C) <14mm ² /s (dynamic viscosity = 2.13mm ² /s (24 degrees C) (based on Renzo (3rd, 1986))), moreover, "there were also the authorities which classified the ketone of 13 or less carbon atoms," therefore we classified it as

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Not classified	-	-	-	It carried out the outside of Category from 96-hour LC50=527mg/L of fishes (Fathead minnows), and others (CERI Hazard Data, 2000).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (aqueous solubility =25000 mg/L (PHYSROP Database, 2005)) and acute toxicity is low.