

GHS Classification

ID928

2-Propanol

CAS 67-63-0

Date Classified: Mar. 23, 2006 (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 2	Flame	Danger	Highly flammable liquid and vapour	Flash point: <23degC, Initial boiling point: >35degC, UNRTDG Class: 3, PG II
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not applicable	-	-	-	There are no chemical groups associated with explosive or self-reactive properties present in the molecule.
9 Pyrophoric liquids	Not classified	-	-	-	Flash point: 399degC (NFPA, 12th, 1997, p325-81, 325-63)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	UNRTDG Class: 3
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 and hydrogen (but not to other elements).
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Containing no -O-O- structure
16 Corrosive to metals	Not classified	-	-	-	UNRTDG Class: 3

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 5	-	Warning	May be harmful if swallowed	Rat LD50 = 5280mg/kg (EHC(1990), SIDS(1997)), 5500mg/kg (EHC(1990), SIDS(1997), CERHazard Data (1999)), 5480mg/kg (EHC(1990), PATTY(1994)), 4710mg/kg (EHC(1990), PATTY(1994), SIDS(1997)) and 1870mg/kg (CERHazard Data (1999)).The statistically calculated toxicity value was 3437mg/kg, and it was classified to category 5.
1 Acute toxicity (dermal)	Category 5	-	Warning	May be harmful in contact with skin	There are rabbit LD50 = 12870mg/kg (EHC (1990), PATTY (1994), SIDS (1997), CERHazard Data (1999)), and 4059mg/kg (CERHazard Data (1999)), and it was set as Category 5 from the lower value.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Not classified	-	-	-	Based on rat LC50 (4-hour exposure to vapor) = 72600mg/m3 (29512ppm)(EHC (1990), PATTY (1994), SIDS (1997)), and 29620ppm (72.865mg/m3) (CERHazard Data (1999)), it was over the range of Category 5 of the ppm concentration standard value with exposure in the steam with no mist. So it was considered as the out of Category.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Not classified	-	-	-	There is a report of no irritation or of mild irritation in the tests for rabbit skin irritation (EHC 103 (1990), PATTY (4th, 1994), ECETOC TR66 (1995), and CERHazard Data (1999)). But from the report that irritation was not indicated in the test which was done skin application for the medical treatment of the volunteer and an alcoholism patient in the humans (EHC 103 (1990)), it was set as the outside of Category .
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	We found the descriptions that there were reports of slight to severe ocular irritant property in the eye irritation tests with the rabbits (EHC (1990), SIDS (1997), PATTY (1994), ECETO TR (1992), and CERHazard Data (1999)). However, critical damaging property was not indicated, therefore we classified it as Category 2A-2B.
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 organ: No data. Skin: It was negative for skin sensitization test by the Buehler method in the guinea pig in SIDS (1997). On the other hand, dermatitis development examples of EHC (1990) who indicated the positive reaction to patch test with 2-propanol also indicated positive reaction to low molecular first class or second class alcohols, and propylene oxide. Since 2-propanol was not clear whether it is an causative agent, we presupposed that we could not classify it for the lack of data.
5 Germ cell mutagenicity	Not classified	-	-	-	Since it is negative in the micronucleus test which used the mouse bone marrow cells by in vivo of SIDS (1997), it carried out the outside of Category.
6 Carcinogenicity	Not classified	-	-	-	Since it was classified into a group 3 in IARC (Access on Oct 2005) and A4 in ACGIH (2003), it was considered as the outside of Category.

7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	In the two-generation reproduction study by the drinking water medication using rats (EHC (19990), IARC (2005), and PATTY (1994)), there was no influence on fertility and growth of born children. On the other hand, no teratogenicity was observed in rats in the growth toxicity and the teratogenicity test in EHC (1990), SIDS (1997) and ACGIH (2003). However, reproductive toxicity, such as decline in a pregnancy rate, an increase in embryo absorption, and an increase in fetus death, were observed at the dose in which a fall of the increasing weight, and toxicity such as an anesthesia action to parental animals were observed. Therefore, it was classified into Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (central nervous system, kidneys, systemic toxicity); Category 3 (respiratory tract irritation)	Health hazard	Danger	May cause damage to organs (central nervous system, kidneys, systemic toxicity); May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation)	PATTY (1994) and ACGIH (2003) have descriptions that there is an active decrease caused by inhalation exposure using rats, while ACGIH (2003) and CERH Hazard Data (1999) have descriptions that stimuli to alimentary canals, decreases of blood pressure and temperature, etc., central-nerves condition; and kidney damage have been confirmed through acute poisoning to humans caused by oral ingestion. Target organs were judged as central nervous systems, kidney and systemic toxicity, and determined to be Category 1. Moreover, irritation to noses and throats in humans is confirmed in ACGIH (2003). It was judged that there was respiratory irritant, and determined to be Category 3.
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (blood vessels, liver, spleen)	Health hazard	Warning	May cause damage to organs (blood vessels, liver, spleen) through prolonged or repeated exposure	Based on the description that effect on a blood vessel, liver, and a spleen were observed in 86 days or a four-month inhalation exposure test in the rat (EHC (1990)), we considered target organs as blood vessel, liver and spleen and classified into Category 2. In addition, in the dose exceeding the guidance value of Category 2, renal effects and anesthetic actions are observed.
10	Aspiration hazard	Category 2	Health hazard	Warning	May be harmful if swallowed and enters airways	Although we have no information for human, the death of cardiopulmonary arrest is observed within 24 hours by the intratracheal administration in the rat (EHC (1990) and PATTY (1994)). And the dynamic viscosity was around 1.6 approximately, we judged that there was aspiration breathing apparatus hazards, and we classified it as Category 2.

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>100mg/L of fishes (<i>Oryzias latipes</i>) (MOE eco-toxicity tests of chemicals, 1997).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (water solubility=1.00*106mg/L(PHYSROP Database, 2005)) and acute toxicity is low.