

GHS Classification

ID914

1-Propanol, 2-methyl-

CAS 78-83-1

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: >=23degC and <=60degC, UNRTDG Class: 3, PGIII
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: 415degC (ICSC (J), 1995)
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 oral LD50 value : 3350mg/kg, 2650mg/kg and 2740 mg/kg (SIDS (2004)), 3100mg/kg (SIDS (2004), EHC 65 (1987), PATTY (4th, 1994) and 2460mg/kg (SIDS (2004), EHC 65 (1987), PATTY (4th, 1994), Recommendation of Sanei Academy(1993)). Calculated based on the values above. Since the calculated values was 2596mg/kg, it was classified to category 5.
1 Acute toxicity (dermal)	Category 5	-	Warning	May be harmful in contact with skin	Calculated based on rabbit LD50 value: 2460mg/kg (SIDS (2004)), 4240mg/kg (SIDS (2004), EHC 65 (1987)), and 3400mg/kg (SIDS (2004), PATTY (4th, 1994)). Since the calculated values was 2523mg/kg, it was set as Category 5.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 5	-	Warning	May be harmful if inhaled	Lower value was adopted from rat LC50 (4 hours): 19.2mg/L (SIDS (2004) and EHC 65 (1987)) and 24.2mg/L (Industrial Hygiene Society advice (1993)). 19.2mg/L (equivalent: 6336ppm) considered to steam with almost no mist from the vapor pressure. And it was classified as Category 5 by the ppm concentration standard.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	From description that mild redness was seen by applying on the human skin (ACGIH (7th, 2001), PATTY (4th, 1994), and Occupational Health Recommendation of Occupational Exposure Limits (1993)), and from description that skin changes were not restored within seven days by the Draize tests (OECD Guidelines 404 conformity good laboratory practice tests) using the rabbit (SIDS (2004)), it was set as Category 2.
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	There was no case in which the liquid was applied to human. But there is the descriptions that ocular irritant property and the change of cornea was seen in the human cases of steam exposure (PATTY (4th, 1994), DFGOT vol.19 (2003), Japan Society for Occupational Health Recommendation of Occupational Exposure Limits (1993)), and on the description that in the Draize test (OECD Guidelines 405-compliant good laboratory practice study) using the rabbit, slight conjunctival reddening was acknowledged even 21 days after (SIDS (2004)), and on the result in which was applicable to the judging standard, that it had the irritant property by the Draize study using the rabbits (ECETOC TR48 (1992)). So we classified it as Category 2A.
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)-	No data available

5	Germ cell mutagenicity	Not classified	-	-	-	There is a negative result (SIDS (2004)) by the micronucleus test with the mammalian erythrocyte which is an in vivo mutagenicity test using a somatic, and there is a negative result (SIDS (2004), DFGOT vol.19 (2003)) by the chromosomal aberration test using mammalian bone marrow cell. So it carried out the outside of Category.
6	Carcinogenicity	Classification not possible	-	-	-	Classification not possible due to lack of data
7	Toxic to reproduction	Not classified	-	-	-	It was considered as out of Category based on the description that effect was not observed in fetus in the exposure tests to the pregnancy rat and rabbit (SIDS (2004), DFGOT vol.19 (2003), and PATTY (4th, 1994)), and the description that the effect on reproduction toxicity or born child was not seen in the two-generation reproductive study using rat of SIDS (2004). There is no report of the example of human exposure which suggests reproductive toxicity.
8	Specific target organs/systemic toxicity following single exposure	Category 3 (respiratory tract irritation, narcotic effects)	Exclamation mark	Warning	May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation, narcotic effects)	From description in EHC 65 (1987), PATTY (4th, 1994), and Society for Occupational Health Recommendation of Occupational Exposure (1993) that the stimulus of the pharynx was observed in human exposure, it was thought that there was respiratory irritant. Moreover, description in SIDS (2004) that the active fall and the reaction fall of startle reflex were seen in the neurotoxicity study using rats exposed to 3000ppm for 6 hours, and inhibition of the central nervous system was seen in the inhalation exposure test exposed to 15.7mg/L for 4 hours using rats and rabbits of EHC 65 (1987). So all were reversible transient influences, and it was thought that there was an anesthetic actions. It was set as Category 3 (respiratory irritant, anesthetic actions)
9	Specific target organs/systemic toxicity following repeated exposure	Not classified	-	-	-	We categorized it to be Out Of Category because the toxicity which endorses the classification was not observed with the dose which exceeds the guidance value of Category 2, and we had no clear toxic report in the human exposure cases in the 90-day inhalation exposure test (exposure concentrations: 0, 250, 1000 or 2500 ppm)(SIDS (2004), DFGOT vol.29 (2003)), in the 90-day forcible oral administration test (dose: 0, 100, 316 or 1000mg/kg/day) using the rat (SIDS (2004), IRIS (Access on Aug 2005)) and in the administration test in drinking water for 90 days using the rat (presumed dose: 0, 80, 340 or 1450mg/kg/day) (SIDS (2004), DFGOT vol.19 (2003) and PATTY (4th, 1994)).
10	Aspiration hazard	Category 2	Health hazard	Warning	May be harmful if swallowed and enters airways	Category 2 because of an isobutyl alcohol (UN Report)

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 24-hour EC50=1250mg/L of Crustacea (Daphnia magna) (EHC65, 1987).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (aqueous solubility = 85000mg/L(PHYSPROP Database, 2005)) and acute toxicity is low.