

GHS Classification

ID992

2,4-Pentanediol, 2-methyl-

CAS 107-41-5

Date Classified: Jul. 24, 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	-	-	-	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	Classification not possible	-	-	-	The available data is obtained with open cup and is close to the boundary value of Category. Therefore, if the flash point is not measured by the method defined by UNRTDG about the real sample, it cannot be judged. The acceptance criteria are as follows: Category 4: 60-degC < flash point <= 93 degC; out of Category: flash point > 93 degC.
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: 306degC (ICSC (J), 2003)
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 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	Classification not possible	-	-	-	No data available

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	-	-	-	Rat LD50 value: 4470mg/kg (SIDS, 2001, DFGOT vol.16, 2001), 4700mg/kg (SIDS, 2001, DFGOT vol.16, 2001), 3700mg/kg (SIDS, 2001, DFGOT vol.16, 2001, PATTY 4th, 1994), 4760mg/kg (SIDS, 2001), 3680mg/kg (SIDS, 2001), 4790mg/kg (ACGIH 7th, 2001, PATTY 4th, 1994) and 4200mg/kg (PATTY 4th, 1994). In spite of the data above, LD50 value was found to be >2000mg/kg in GLP study following OECD 402 using rats in SIDS (2001), no death would be observed less than 2000mg/kg value, and it was considered out of category.
1 Acute toxicity (dermal)	Not classified	-	-	-	It was set as the outside of Category based on rabbit and rat LD50 value. Rabbit LD50 values: >5000mg/kg (SIDS, 2001, DFGOT vol.16, 2001), >1840mg/kg (SIDS, 2001), 12300mg/kg (SIDS, 2001, ACGIH 7th, 2001, DFGOT vol.16, 2001, PATTY 4th, 1994), >8680mg/kg (SIDS, 2001), 7900mg/kg (SIDS, 2001, DFGOT vol.16, 2001, PATTY 4th, 1994), and >10000mg/kg (DFGOT vol.16, 2001). Rat LD50 value: >2000mg/kg (OECD 402 conformity GLP test, SIDS, 2001), and it judged that death was not observed at 2000mg/kg or less in rats.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Not classified	-	-	-	From description that irritation was not acknowledged by exposure for 4 hours in the skin irritation test using the rabbit on SIDS (2001) and DFGOT (vol.16, 2001), it was carried out the outside of Category.
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Change of the eye applicable to the standard of irritation was not acknowledged in the eye irritation tests using the rabbits in SIDS (2001) (OECD Guidelines 405 compatible good laboratory practice tests). However, based on the descriptions that severe irritation was acknowledged in the tests applied to the eyes of the rabbits (SIDS (2001), ACGIH (7th, 2001), DFGOT (vol.16, 2001), PATTY (4th, 1994)), and on the description that in the Draize test using the rabbits, change of the eyes did not completely recover within seven days (SIDS (2001)). So we classified it as Category 2A.

4	Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Not possible	-	-	-	Respiratory organ: No data. Skin: Based on the description that in Buehler test using the guinea pigs of SIDS (2001) it gave no positive reaction, we classified it to be Out Of Category.
5	Germ cell mutagenicity	Classification not possible	-	-	-	Classification not possible due to lack of data
6	Carcinogenicity	Classification not possible	-	-	-	No data available
7	Toxic to reproduction	Not classified	-	-	-	It was considered as out of Category based on the description that clear reproductive toxicity was not observed even at the dose in which general toxicity is observed in dam animals in the teratogenicity test by the oral administration using rat (SIDS (2001)).
8	Specific target organs/systemic toxicity following single exposure	Category 3 (narcotic effects, respiratory tract irritation)	Exclamation mark	Warning	May cause respiratory irritation or may cause drowsiness and dizziness (narcotic effects, respiratory tract irritation)	Because of descriptions in SIDS (2001), ACGIH (7th, 2001), DFGOT (vol.16, 2001), and PATTY (4th, 1994) referring to that respiratory irritant was confirmed in humans exposure cases, and of descriptions in SIDS (2001) and ACGIH (7th, 2001) referring to confirmation of symptoms indicating anesthetic actions in oral administration studies using rats or mice. So it was judged as Category 3 (anesthetic actions, respiratory irritant).
9	Specific target organs/systemic toxicity following repeated exposure	Not classified	-	-	-	We considered it as Out Of Category based on the description that the significant toxic action was not observed with the dose which exceeds the guidance value range of Category 2 in the oral administration examination using the rat or in the dermal administration test using the rabbit (SIDS (2001), DFGOT (16 vol. 2001), and PATTY (4th, 1994)). Moreover, we found the descriptions that a toxic phenomena was not observed in the oral study for humans (SIDS (2001) and DFGOT (vol.16, 2001)).
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)	Not classified	-	-	-	It carried out the outside of Category from 96-hour LC50>100 mg/L (MOE eco-toxicity tests of chemicals, 1997) of fishes (<i>Oryzias latipes</i>).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (water solubility=1.00*106mg/L(PHYSPROP Database, 2005)) and acute toxicity is low.