

GHS Classification

ID670

2-Butanone, peroxide

CAS 1338-23-4

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 classified	-	-	-	UNRTDG No. 3105, Class: 5.2
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	-	-	-	Although it was thought that it was diluted with a dilution agent with high flash point (for example, dimethyl phthalate with 146 degC of flash point (Merck13th, 2001)), it was presupposed that it can not be classified since the flash point of a mixture with methyl-ethyl-ketone peroxide is unknown.
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not applicable	-	-	-	Classified in organic peroxides
9 Pyrophoric liquids	Not classified	-	-	-	UNRTDG Class: 5.2(No.3105)
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 classified	-	-	-	UNRTDG No. 3105 Class: 5.2
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Type B, Type D, or Type E	Exploding bomb and Flame	Danger	Heating may cause a fire or explosion	The United Nations number and the GHS classification are decided as follows by methyl ethyl ketone peroxide and diluent ratio; Diluent type A >=48%, Available oxygen >10% and <=10.7%, UNRTDG No.3101, Class:5.2, GHS Classification, Organic peroxides type B Diluent type A >=55%, Available oxygen <=10%, UNRTDG No.3105, Class:5.2, GHS Classification, Organic peroxides type D Diluent type A >=60%, Available oxygen <=8.2%, UNRTDG No.3107, Class:5.2, GHS Classification, Organic peroxides type E.
16 Corrosive to metals	Not classified	-	-	-	UNRTDG No.3105, Class: 5.2

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	It was set as Category 4 based on marginal lower confidence limits 407 mg/kg. This value is average of rat oral LD50= 484, 681, and 407mg/kg(ACGIH (2001) and PATTY (5th, 2001)).
1 Acute toxicity (dermal)	Category 5	-	Warning	May be harmful in contact with skin	It was set as Category 5 based on rat percutaneous LD50 value = 4000mg/kg (PATTY (5th, 200)).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	It was classified as Category 2 based on 200ppm: the confidence bounds lower bound of the average value of at inhalation LC50 = 200ppm (ACGIH (2001)), 945 and 4587ppm (Patty (2001)).
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	Classification not possible due to lack of data
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	There is a statement of "very strong stimulative substance" (PATTY (5th, 2001, vol.5, p1155)). But it was classified as Category 2 because there was no statement about irreversible pathological change, and there was a statement of "stimulativeness" (DFGOT vol.3 (1991, p250)).
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	It was set as Category 1 based on the description of "caustic" (PATTY (5th, 2001, vol.6, p1155)), "very severe irritation" (DFGOTvol.3 (1991, p250)) and "causing a critical injury to a rabbit eye" (HSDB (2003)).
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	Classification not possible	-	-	-	Classification not possible due to lack of data

6	Carcinogenicity	Classification not possible	-	-	-	Classification not possible due to lack of data
7	Toxic to reproduction	Classification not possible	-	-	-	No data available
8	Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory)	Health hazard	Danger	Cause damage to organs (respiratory)	There is the description that "there is the hyperemia with bleed in the lung in the 4-hour inhalation test of rat,"(ACGIH (2001)) and "the respiratory irritation substance"(PATTY (5th, 2001, vol. 6, p1203)), it is classified into Category 1 (respiratory systems). Although there is the report about the symptom in the case of oral ingestion in human, it is the nonspecific effect to organs by massive ingestion, and it is classified based on the animal test information.
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (liver, kidneys)	Health hazard	Warning	May cause damage to organs (liver, kidneys) through prolonged or repeated exposure	It was classified to as Category 2 based on the statementof "the fatty degeneration of liver and degeneration of kidney function are seen in the oral administration test with 97mg/kg of methyl ethyl ketone peroxide to the rat for seven weeks (ACGIH (2001))." Based on the statement with "changes in the tissues of the spleen and marrow (spleen hematopoietic cell proliferation and bone marrow hyperplasia) which were found out in the dermal administration test to rats and mouse is a secondary reactions" (ACGIH (2001) and NTP TR18 (1993)), changes in tissues of the spleen the and marrow is not used as a basis of a classification.
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)	Classification not possible	-	-	-	No data available
11 Hazardous to the aquatic environment (chronic)	Classification not possible	-	-	-	No data available.