

GHS Classification

ID573

CAS 7722-84-1

Physical Hazards

Hydrogen peroxide

Date Classified: Jun. 20, 2006 (Environmental Hazards: Mar. 31, 2006)

Reference Manual: GHS Classification Manual (Feb. 10, 2006)

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Explosives	Not classified	-	-	-	Not classified based on UNRTDG Class: 5.1, Subsidiary risks Class: 8. However, the substance could be classified as explosives since it contains -O-O- bonds as chemical groups associated with explosive properties present.
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	Not classified	-	-	-	Non-combustible (ICSC(J), 2000; Hommel, 1991).
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not classified	-	-	-	Not classified based on UNRTDG Class: 5.1, Subsidiary risks Class: 8, though containing -O-O- bonds as chemical groups associated with explosive properties present.
9 Pyrophoric liquids	Not classified	-	-	-	Non-combustible (ICSC (J), 2000; Hommel, 1991)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Non-combustible (ICSC(J), 2000; Hommel, 1991)
12 Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	-	-	-	metal or non-metal (B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At) is not included. The physical-properties value (boiling point, melting point, viscosity, others) of the solution of the various concentration of this substance is judged to be a stable in the water based on being adopted as much of the literature as universal
13 Oxidizing liquids	Category 1	Flame over circle	Danger	May cause fire or explosion; strong oxidizer	Category 1 based on GHS Classification manual, UNRTDG No. 2015, Class: 5.1, Subsidiary risks Class: 8, PG 1 (HYDROGEN PEROXIDE, STABILIZED or HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED with more than 60% hydrogen peroxide)
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Inorganic substance
16 Corrosive to metals	Classification not possible	-	-	-	Although it is considered as UNRTDG class 5.1 (subsidiary risks 8), this subfollowing classification is considered based on skin corrosiveness. Since there is no data about corrosion behavior, it cannot be classified.

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 LD50 = 311 mg/kg obtained from the calculation using four rat data (EU-RAR (2003)).
1 Acute toxicity (dermal)	Category 5	-	Warning	May be harmful in contact with skin	It was set as Category 5 based on rat LD50= 4060mg/kg (EU-RAR (2003)).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 3	Skull and crossbones	Danger	Toxic if inhaled	The saturated vapor pressure concentration of this product is 1980ppm. And it was classified as Category 3 based on rat LC50 = 1438ppm of obtained by the test considered to have been performed with steam (EU-RAR (2003)).
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 1A-1C	Corrosion	Danger	Causes severe skin burns and eye damage	The conclusion with necrosis which penetrates to all layers of the skin or corrosivity is indicated in 3 minute, 1 hour, or 4 hour application on rabbits (EU-RAR (2003), ECETOC Special Report 10 (1996)), and in EU, it is classified as C; R35, therefore, this product is thought to have corrosivity on skin. However, since information is insufficient to subcategorize, it was classified as Category 1A-1C.
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	This product is a skin corrosive substance. There is a publication that severe irritation for an animal and it is corrosive (ECETOC JACC (1993), EU-RAR (2003)). It was set as Category 1 based on the above information.
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 sensitization: No data Skin sensitization: With the guinea pigs, there are negative results (EU-RAR (2003), ECETOC JACC (1993)) by two examinations, and it is indicated in humans that a large group of persons was negative in the patch test (EU-RAR (2003)). However, there is also a statement (EU-RAR (2003)) that two examples were positive among 158 examples in the human patch test, and since data is insufficient, it cannot be classified.
5 Germ cell mutagenicity	Not classified	-	-	-	The substance was regarded as outside the categories. Because there are no results from multi-generation epidemiological and mutagenicity tests in humans and in vivo mutagenicity tests in germ cells, and there is a report of a negative result from a micronucleus test in mice (EU-RAR (2003), ECETOC Special Report 10 (1996)), and there are no positive results from in vivo genotoxicity tests in germ cells.

6	Carcinogenicity	Not classified	-	-	-	It was classified into 3 according to IARC, and classified into A3 according to ACGIH. IARC which has newer classification year was adopted and it was set as the outside of Category by the technical guideline.
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	There is the description that the effect to human sperm is observed in the in vitro experiment (ECETOC JACC (1993)), and there is no description about the general toxicity to parent animals in the animal test, but based on the description that there is the effect to sperm motility, the effect to estrous cycle of female, the effect to the decrease of the number of delivery maternal animal, and the weight decrease of offspring, (ECETOC JACC (1993)), it is classified into the Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory organs, central nervous system)	Health hazard	Danger	Cause damage to organs (respiratory organs, central nervous system)	The irritations to the nose, the throat, and the tracheal are reported in human (ACGIH (2001)) and animal (EU-RAR (2003)). In animals, there are the descriptions that it causes the congestion, pneumonodema, emphysema of lung and tracheal and necrosis of tract epithelium within the guidance level of Category 1 (EU-RAR (2003), ECETOC Special Report 10 (1996)). It was classified into Category 1 (respiratory tracts) based on these results. Based on the descriptions of headache, giddiness, tremor, spasm, coma, and cerebral infarction in humans (ACGIH (2001), EU-RAR (2003)), it was classified into Category 1 (central nervous systems).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (lung); Category 2 (blood)	Health hazard	Danger; Warning	Causes damage to organs (lung) through prolonged or repeated exposure; May cause damage to organs (blood) through prolonged exposure	Since a fibrous tissues appears here and there in pneumoconiosis with the dosage of guidance value range of Category 1 in the inhalation test of steam in a dog (EU-RAR (2003)), and there was the statement that mixture of atelectatic lung area and emphysema area is seen and it has irritation in lung also in humans (ECETOC JACC (1993)), it was classified in Category 1 (lung). It was classified in Category 2 (blood) on the basis that effect was seen on the white blood cell counts and the hematocrit values by oral administration in rats with the dosage of the guidance value range of Category 2 and hemolytic was seen (EU-RAR (2003)).
10	Aspiration hazard	Classification not possible	-	-	-	Classification not possible due to lack of data

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Category 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 48-hour EC50=2.4mg/L of Crustacea (Water flea) (EU-RAR, 2003).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Rapidly degrading in water.