GHS Classification

ID635 Acetone

CAS 67-64-1 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: -20degC (<-23degC), Boiling point: 56.5degC (>-35degC)
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: 465degC and liquid
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 metaloids(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 (but not to other elements).
14	Oxidizing solids	Not applicable	–	–	–	Liquid (GHS definition)
15	Organic peroxides	Not applicable	–	–	–	Organic compounds containing no -0-0- structure
16	Corrosive to metals	Not classified	–	–	–	Steel and aluminum can be used as a container. (Hommel, 1991)

Health Hazards

	Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1	Acute toxicity (oral)	Not classified	–	–	–	SPECIES: Rat ENDPOINT: LD50 VALUE: > 5000 mg/kg REFERENCE SOURCE: SIDS (1999), ACGIH (2001)
1	Acute toxicity (dermal)	Not classified	–	–	–	Based on rabbit LD50 >5000mg/kg (ACGIH (2001), SIDS (1999)), it was set as the outside of Category.
1	Acute toxicity (inhalation: gas)	Not applicable	–	–	–	Liquid (GHS definition)
1	Acute toxicity (inhalation: vapour)	Not classified	–	–	–	Rat LC50: 32000ppm (75.8mg/L) (SIDS (1999)) Since this value was outside of the range of 2.5 times of judgment criteria of Category 4 (50mg/L), it was classified as out of Category. (20degC. The saturated air of acetone are 230000ppm, and it is considered that all inhalation toxicity study was done in the state of steam.)
1	Acute toxicity (inhalation: dust, mist)	Classification not possible	–	–	–	No data available
2	Skin corrosion / irritation	Not classified	–	–	–	It was classified as out of Category from the statement of having no stimulativeness on rabbit skin (EHC 207 (1998)) and (SIDS (1999)).
3	Serious eye damage / eye irritation	Category 2B	–	Warning	Causes eye irritation	Vapor stimulates public eye. However, if exposure stops, irritation will not follow (ATSDR (1994)). The result of severe is reported in the rabbit (ACGIH (2001)). Although a corneal epithelium is destroyed, substrate is not destroyed, and destruction of a corneal epithelium will be recovered in 4-6 days. Acetone is not corrosive eye irritations (SIDS (1999)). It was set as Category 2B from the above description.
4	Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Not classified	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	Since it was indicated negative by the Mouse ear swelling test and Guinea pig maximization test(SIDS (1999)), the skin sensitization was put outside of the Category. Since there is no data, the respiratory sensitization cannot be classified.
5	Germ cell mutagenicity	Not classified	–	–	–	We found the negative results for in vivo micronucleus examination (SIDS (1999), EHC 207 (1998)), therefore we classified it as Out Of Category by the technical guideline.
6	Carcinogenicity	Not classified	–	–	–	It is ACGIH A4(ACGIH (2001)), and categoried the outside of Category from the technical indicator.

7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the undorn child	There is a report that he has no effect on a miscarriage in an epidemiological study (ATSDR, 1994). It is reported of slight developmental toxicity (decrease of embryo weight) in rat high concentration exposure (11000 ppm (20 mg/L)) (EHC, 207 (1998)) and of the decrease of embryo weight and the increase of late embryo absortion rate in mouse high concentration exposure (6600 ppm (15.6 mg/L)) (EHC, 207 (1998)). There is a description that study is still more nearly required, for an animal with humans (EHC). And it is classified into the Category 2 the above thing.
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)	Based on the descriptions that irritation in the human throat is caused by 1200ppm exposure (ACGIH (2001)), that irritation is caused in the nasal cavity, throat and trachea by 1190 and 2400mg/m3/6h exposure to humans (ECH 207 (1998)), and that irritation was caused in the throat by 1000ppm/4h exposure (ECH 207 (1998)). So it was set as Category 3 (airway irritation). And the discriptions that a male who drank 200ml fell coma (recovering his conciousness in 12 hours), and that a worker exposed to 12000ppm experienced headache, dizziness, leg weakness and fainting (ACGIH (2001)). So it was also set as Category 3 (anesthetic actions) based on the descriptions that a male who drank 200 ml fell coma, recovering his conciousness in 12 hours, and that a worker exposed to 12000 ppm experienced headache, dizziness, leg weakness and dead faint(ACGIH (2001)).
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (blood)	Health hazard	Warning	May cause damage to organs (blood) through prolonged or repeated exposure	It was classified into Category 2, since by the examination using volunteers, the significant increase in white corpuscles and an eosinophil and the significant reduction of a phagocytosis of a neutrophil were observed in the exposure group with 500 ppm, 6 hours/day for 6 days (ACGIH (2001)). In the examination using the rat and the mouse, although it was a dose greatly beyond guidance limits, the similar haematological changes like in humans was admitted (SIDS (1999)). Since in other examination using a rat and a mouse , each is over the guidance limits (ACGIH (2001)),(SIDS (1999)) and there is also no example of a report in humans, they were not adopted as a classification basis.
10	Aspiration hazard	Category 2	Health hazard	Warning	May be harmful if swallowed and enters airways	The calculated dynamic viscosity is 0.426mm2/sec and there was not the animal data of chemical pneumonia, however, it was the ketone of under C13, therefore it was classified into 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 (Fathead minnows) (EHC207, 1998).
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.