

## GHS Classification

**ID762**

**1,3-Dioxolane**

**CAS 646-06-0**

Date Classified: Jun. 20, 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	Category 2	Flame	Danger	Highly flammable liquid and vapour	Flash point: <23degC. Initial boiling point: >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	-	-	-	The ignition points is 274 degC and does not ignite in room temperatures.
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 halogen) 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 -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)	Category 5	-	Warning	May be harmful if swallowed	There were two reports of rat LD50. And the lower data of 3000mg/kg (RTECS (2004)) was adopted, it was set as Category 5.
1 Acute toxicity (dermal)	Not classified	-	-	-	Although there are two reports of rabbit LD50, it was 9074mg/kg (RTECS (2004)) when the lower data was adopted. This value became more than 5000mg/kg (dermal LD50 2000mg/kg (Category 4) *2.5), and 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	-	-	-	There are two reports on rat LC50, and the data with lower value is 22574ppm/4h (ACGIH (2002)). The saturated vapor concentration at 20degC is 104000ppm, and it is thought that this test was done with steam. Moreover, since 22574ppm becomes more than 12500ppm: (gas 5000ppm (Category 4) *2.5), it was classified as out of Category.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 3	-	Warning	Causes mild skin irritation	It was classified as Category 3 from the statement of "mild" of the rabbit examination (RTECS (2004)).
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	It was set as Category 2A from statement of the stimulative (severity rating 8) (ACGIH (2002)) by observation in 72 hours after the examination of the rabbit.
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)-	Respiratory sensitization: As there is no data, it cannot be classified. Skin sensitization: Based on a statement that although the skin was exposed repeatedly and irritation was observed, any allergic skin injuries were not observed (ACGIH (2002)), it was put outside of Category.
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	There was a negative statement by dominant lethality test of mice (ACGIH (2002)) and positive in micronucleus test in mice with bone marrow cells (ACGIH (2002)), however, there was no report of the productive cell in vivo genotoxicity study. Therefore we classified it as Category 2.

6	Carcinogenicity	Classification not possible	-	-	-	Classification not possible due to lack of data and reports
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	<p>There is no report on humans.</p> <p>In an oral administration test to pregnant rats, delayed fetal development and delayed ossification of sternal bones and skulls were observed (ACGIH (2002)).</p> <p>Moreover, although effects on female reproductive ability were not observed but epithelium spotty necrosis of tubulus seminiferus contortus and spermatogenic disorder were observed in microscopy of male testis in the test in which male rats exposed orally or by inhalation were made to mate with non-exposed female rats (ACGIH (2002)).</p> <p>Reduction of coupling and the rate of delivery, increase in the number of stillbirth, and reduction in the number of newborn were observed in mating with male rats administered in drinking water and female rats without treatment(HSDB (2003)).</p> <p>Reduction of the pregnancy rate and the number of delivery of mother animals and decrease of survived offsprings count (F1b) were observed in the test which female rats were copulated with male rats given drinking water administration and were continuously exposed during the pregnancy period and for 10 days after lactation before mating with another male without treatment(HSDB (2003)).</p> <p>In the test which female rats that had mated with male rats administrated in drinking water again mated with new males administrated in drinking water after their delivery, reduction of mating rate, the rate of pregnancy and infant animals' weight of the 21st day(F1b) was observed(HSDB (2003)).</p> <p>It was classified into Category 2 based on the above statement.</p>
8	Specific target organs/systemic toxicity following single exposure	Classification not possible	-	-	-	Although there is that laboratory animals report of test, since impact is seen only out of the guidance value of category 2, it cannot classify.
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Although there is report of the laboratory animals test, and effect is seen slightly in all at outside the guidance value of Category 2, since data is insufficient, it cannot be categorized.
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 48-hour EC50=6950000microg/L of Crustacea (Daphnia magna) (AQUIRE, 2003).
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.