

## GHS Classification

**ID898**

**2,2'-[oxybis(methylene)]bisoxirane**

**CAS 2238-07-5**

Date Classified: Oct. 1, 2005 (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 4	-	Warning	Combustible liquid	Flash point: >60degC and <=93degC
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Classification not possible	-	-	-	No data available
9 Pyrophoric liquids	Classification not possible	-	-	-	No data available
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)	Category 4	Exclamation mark	Warning	Harmful if swallowed	Category 4 based on SPECIES: Rat; ENDPOINT: LD50; VALUE: :450mg/kg (ACGIH 7th, 2001; PATTY 4th, 1994) and 510mg/kg (PATTY 4th, 1994)
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Rat LD50 value = 1000mg/kg (ACGIH 7th, 2001, PATTY 4th, 1994), and rabbit LD50 value = 1500mg/kg (ACGIH 7th, 2001, PATTY 4th, 1994). The lower value was adopted and it was set as Category 3.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 1	Skull and crossbones	Danger	Fatal if inhaled	Based on rat LC50 (8 hours) value: 68ppm (4-hour equivalent: 0.51mg/L) (ACGIH 7th, 2001, PATTY 4th, 1994), 0.51mg/L could be judged from vapor pressure as the steam with almost no mist. And it was classified by the ppm concentration standard. 0.51mg/L was converted to 96ppm with the conversion factor (1ppm = 5.32mg/m3), and it was classified as Category 1.
1 Acute toxicity (inhalation: dust, mist)	Category 4	Exclamation mark	Warning	Harmful if inhaled	Based on rate LC50 (4 hours) value: 200ppm (equivalent 1.06mg/L) (ACGIH 7th, 2001, PATTY 4th, 1994), it was set as Category 4.
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	It was set as Category 2 from descriptions that severe irritation which produced erythema, edema and eschar was acknowledged in the test using the rabbit (ACGIH (7th, 2001)), and that severe irritation and chemical burn were acknowledged when single time application was done in the rabbit skin (PATTY (4th, 1994)).
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	We classified it as Category 2A based on the descriptions that severe irritational property was acknowledged in the tests applied to the eyes of the animals (ACGIH (7th, 2001) and PATTY (4th, 1994)).
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	Respiratory organ: No data. Skin: There were descriptions that strong skin sensitization was acknowledged in the test using the guinea pigs in ACGIH (7th, 2001) and PATTY (4th, 1994), however, the test method was not clear, therefore we presupposed it not to be able to be classified for the insufficiency of data.
5 Germ cell mutagenicity	Classification not possible	-	-	-	Classification not possible due to lack of data
6 Carcinogenicity	Not classified	-	-	-	Not classified because of "A4" (ACGIH, 7th, 2001)

7	Toxic to reproduction	Classification not possible	-	-	-	Although the effect on the testes was observed in the repetitive inhalation exposure test using rat (ACGIH (7th, 2001)), and the 24-hour inhalation exposure test using a rabbit, there is no data of the examination which examined fertility, and it cannot be classified since data is insufficient.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (testes, respiratory organs, liver, kidneys, adrenal)	Health hazard	Danger	Cause damage to organs (testes, respiratory organs, liver, kidneys, adrenal)	From description in PATTY (4th, 1994) that in the inhalation exposure test using rats, breathing difficulty, change in liver, kidney, and the adrenal gland were seen at the concentration of the guidance value range of Category 1, and description in ACGIH (7th, 2001) that testicular atrophy was seen at the concentration of the guidance value range of Category 1 in the inhalation exposure test using the rabbits. So it was set as Category 1 (testes, respiratory tracts, liver, kidney, adrenal gland).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (testes, blood); Category 2 (eye, immune system, kidneys, adrenal)	Health hazard	Danger; Warning	Causes damage to organs (testes, blood) through prolonged or repeated exposure; May cause damage to organs (eye, immune system, kidneys, adrenal) through prolonged or repeated exposure	Based on the description that the effects on the testes and on the blood was observed with the concentration of the guidance value range of Category 1 in the inhalation exposure test using the rat (ACGIH (7th, 2001) and PATTY (4th, 1994)), and on the description that in the dermal administration test using the rat, the corneal opacity, and the effects on thymic, lymphs, kidney, testes, and the adrenal with the dose of the guidance value range of Category 2 (PATTY (4th, 1994)), it was classified to be Category 1 (testes, blood) and Category 2 (eye, immune system, kidney, adrenal gland).
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.