

GHS Classification

ID585

dioxathion

CAS 78-34-2

Date Classified: Jul. 24, 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	Not classified	-	-	-	Non-combustible (ICSC, 1998; Sax, 11th, 2004; HSDB, 2005).
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Classification not possible	-	-	-	Classification not possible due to lack of data, though the substance contains P-O bonds as chemical groups with self-reactive properties present.
9 Pyrophoric liquids	Not classified	-	-	-	Non-combustible (ICSC, 1998; Sax (11th, 2004); HSDB, 2005)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Non-combustible (ICSC (1998), Sax (11th, 2004), HSDB (2005))
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	-	-	-	Since measurement of water solubility, a water-octanol distribution coefficient, etc. is performed (ICSC (1998) etc.), it is judged that it is stable in the water.
13 Oxidizing liquids	Classification not possible	-	-	-	Classification not possible due to lack of data, though organic compounds containing oxygen chemically bonded to phosphorus.
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 2	Skull and crossbones	Danger	Fatal if swallowed	It was set as Category 2 based on LD50= 29mg/kg obtained from the calculation using six data of rat LD50 values (ACGIH (2002), JMPR 125 (1968)).
1 Acute toxicity (dermal)	Category 2	Skull and crossbones	Danger	Fatal in contact with skin	LD50= 67.6mg/kg calculated from four data (ACGIH (2002), PATTY (5th, 2001)) of rat LD50 value. And LD50= 85mg/kg of two data (equivalence) of rabbit LD50 value. It was set as Category 2 based on LD50= 67.6mg/kg of the lower value.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: dust, mist)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	Since the saturated vapor pressures concentration of this product is 0.000115mg/L (6*10 ⁻⁷ ppm), it is thought that the inhalation study was done in mist. It was set as category 2 based on rat LC50 = 0.3495mg/L (ACGIH (2002)).
2 Skin corrosion / irritation	Classification not possible	-	-	-	No data available
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Mild and transient conjunctivitis is produced in a rabbit. But there was no effect in a corneal (ACGIH (2002), PATTY (5th, 2001), HSDB (2005)). And that there were the haze eye and stimulativeness in humans (ICSC (J) (1998), HSFS (1998)). So it was set as Category 2B.
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	-	-	-	It was decided that the substance could not be classified by the technical guidelines. Because there are no results from in vivo tests and there are no records of strong positive results in vitro tests in several parameters.
6 Carcinogenicity	Not classified	-	-	-	Not classified because of

7	Toxic to reproduction	Not classified	-	-	-	Since there is the description that there is no malformation in the parent animals, next generation and the third generation in the rat three generation test (ACGIH (2002), PATTY (5th, 2001)), and there is the description that there is no abnormal findings of parent animals of rat, and no bad effect to the reproductive behavior fertility and to the number of a lactating- litter neonatal, and the size and the anatomic structure of neonatal is normal (JMPPR 125 (1968)), it was considered as on the outside of Category.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system)	Health hazard	Danger	Cause damage to organs (nervous system)	Due to the description that miosis, muscle spasticity, salivation, sweating, nausea, dizziness, closeness, convulsion, incoordination, loss of consciousness, etc. were observed in human (ACGIH (2002), PATTY (5th, 2001), ICSC (J) (1998), HSFS (1998)), it was classified into Category 1 (nerve system).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system)	Health hazard	Danger	Causes damage to organs (nervous system) through prolonged or repeated exposure	It was classified in Category 1 (nervous systems) based on the statements that inhibition of cholinesterase in plasma and a red corpuscle, hyperexcitability, tremor in rats and dogs with the dosage of guidance value range of Category 1 (ACGIH (2002), PATTY (5th, 2001)), and the statements of the cholinesterase inhibition in plasma by repeated exposure also in humans (ACGIH (2002), PATTY (5th, 2001), JMPPR 125 (1968), HSDB (2005)).
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)	Category 1	Environment	Warning	Very toxic to aquatic life	It was classified into Category 1 from 48-hour EC50=0.35microg/L of Crustacea (Daphnia magna) (HSDB, 2004).
11 Hazardous to the aquatic environment (chronic)	Category 1	Environment	Warning	Very toxic to aquatic life with long lasting effects	Classified into Category 1, since acute toxicity was Category 1, supposed not rapidly degrading (BIOWIN), though supposed less bioaccumulative (log Kow=3.45(PHYSPROP Database, 2005)).