

GHS Classification

ID31

O-ethyl O-(4-methylthiophenyl) S-propyl dithiophosphate

CAS 35400-43-2

Date Classified: May 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	-	-	-	Not classified because it "may burn but does not ignite readily (HSDB, 2005)"
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	-	-	-	It carried out the outside of Category by the statement of may burn but does not ignite readily (HSDB (2005)).
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 classified	-	-	-	Since there is a data of water solubles, it carried out the outside of Category for not being water reactive.
13 Oxidizing liquids	Classification not possible	-	-	-	Classification not possible due to lack of data, though organic compounds containing oxygen chemically bonded to phosphorus (but not fluorine and chlorine).
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 3	Skull and crossbones	Danger	Toxic if swallowed	SPECIES: Rat ENDPOINT: LD50 VALUE: 100-300mg/kg REFERENCE SOURCE: ACGIH (2001) SPECIES: Rat ENDPOINT: LD50 VALUE: 107-304mg/kg (male), 65-275mg/kg (female) REFERENCE SOURCE: PATTY (5th, 2001)
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	It was classified into Category 3 from the description of rabbit LD50: male 820m/kg, female 994mg/kg (PATTY (5th, 2001)) and 800 - 1000 mg/kg (ACGIH (2001)).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	-	-	-	There is no data, and it cannot be classified. (generation of vapor can be disregarded in room temperatures.)
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	There is no data and it cannot classify. (There is a data of mouse and hamster LC50 >0.49mg/L/4H (PATTY (5th, 2001)), and Category 3 and 4 can be assumed.)
2 Skin corrosion / irritation	Not classified	-	-	-	It was classified as out of Category from the statement of having no stimulativeness on the examination with rabbits (ACGIH (2001)).
3 Serious eye damage / eye irritation	Not classified	-	-	-	It was set as the outside of Category from the statement of having no stimulativeness (ACGIH (2001)) by the examination of the rabbit.
4 Respiratory/skin sensitization	respiratory sensitization: Classification not possible; Skin sensitization: Not possible	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	Respiratory sensitization: Classified as uncategorizable because of no data. Skin sensitization: Classified as out of category because the guinea pig test using a pure product came negative. (A test using an end-use product can result positive.)
5 Germ cell mutagenicity	Not classified	-	-	-	Because of the reports indicating negative results in the dominant lethal test in mice (ACGIH (2001)), the mouse micronucleus test (PATTY (5th, 2001)) and in the in vitro test (the Ames test, sister chromatid exchange test) (ACGIH (2001), PATTY (5th, 2001)). So the substance was regarded as outside the categories.

6	Carcinogenicity	Not classified	-	-	-	There is the description that carcinogenicity was not observed in mouse and dog test (PATTY (5th, 2001)). And it was set as the outside of Category from being classified into A4 according to ACGIH.
7	Toxic to reproduction	Not classified	-	-	-	The fetotoxicity and teratogenicity were not observed but maternal toxicity (feed consumption and weight reduction) was observed (ACGIH(2001)) in the pregnant animals oral administration test of rat and rabbit, maternal toxicity, fetotoxicity and teratogenicity was not observed in the pregnant animals oral administration test of rat (PATTY (5th, 2001)), and reproductive toxicity was not observed in three generation test of rat (inhalation exposure) (ACGIH(2001)). Based on the above, it was put 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)	Suppression of the central nervous system, such as headaches, dizziness, convulsions and respiratory failure are observed, and other effects on the nervous system, such as constriction of the pupils, arrhythmia and muscle spasms, are observed as acute toxicity symptoms in humans (EHC 63 (1986), ICSC (1993), HSDB (2005)). Moreover, there is the report of suppression of cholinesterase activity in sera, erythrocytes and the brain within the guidance values for Category 1 in the single-dose study (PATTY (5th, 2001)). So the substance was classified as Category 1 (nervous 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	Since in the repeated oral or inhalation administration with rat, inhibition in cholinesterase activities was observed within the guidance value of Category 1 (ACGIH (2001), PATTY (5th, 2001)), and as a human chronic toxicity symptoms, because of the description of headaches, weakness, failure of memory, a sleep disturbances, decreased appetite, disorientation, and hand and foot trembling etc (HSDB (2005)). Based on these results it was classified into Category 1 (nervous system).
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= 0.75ppb of Crustacea (Daphnia magna) (AQUIRE, 2003).
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 is Category 1, supposed not rapidly degrading (BIOWIN), and bioaccumulative (log Kow=5.48 (PHYSPROP Database, 2005)).