

GHS Classification

ID142

Diisopropyl 1,3-dithiolan-2-ylidenemalonate; isoprothiolane

CAS 50512-35-1

Date Classified: Mar. 15, 2007 (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	-	-	-	Solid (GHS definition)
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Solid (GHS definition)
5 Gases under pressure	Not applicable	-	-	-	Solid (GHS definition)
6 Flammable liquids	Not applicable	-	-	-	Solid (GHS definition)
7 Flammable solids	Classification not possible	-	-	-	No data available
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 applicable	-	-	-	Solid (GHS definition)
10 Pyrophoric solids	Not classified	-	-	-	Non-pyrophoric when in contact with air at a room temperature and used as agricultural chemicals.
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Test methods applicable to solid (melting point <= 140degC) 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	-	-	-	Solid (GHS definition)
14 Oxidizing solids	Not applicable	-	-	-	Organic compounds containing oxygen and the oxygen is chemically bonded only to carbon (but not to other elements).
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 4	Exclamation mark	Warning	Harmful if swallowed	It was set as Category 4 from rat oral LD50 value (male 1190mg/kg; Agricultural Chemical Registration Data, 2001).
1 Acute toxicity (dermal)	Not classified	-	-	-	From rat percutaneous LD50 value (>10250mg/kg; Agricultural Chemical Registration Data, 2001), it was set as the outside of Category.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Solid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: dust, mist)	Category 4	Exclamation mark	Warning	Harmful if inhaled	It was set as category 4 based on rat inhalation (particulate and mist) LC50 value (>2.77mg/L; Agricultural Chemical Registration Data, 2001). In addition, although LC50 value was not specified, 4 is in the range of 1.0 <Category 4 = <5.0mg/L.
2 Skin corrosion / irritation	Not classified	-	-	-	Since no irritant effect was seen in rabbit skin irritation study (Agricultural Chemical Registration Data, 2001), it was classified as out of Category.
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Since reversible mild irritation was seen in the rabbit eye stimulativeness examination (Agricultural Chemical Registration Data, 2001), it was set as Category 2B.
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: No data. Skin sensitization: Classified as out of category because no sensitization reactions were found in the guinea pig sensitization test (Maximization method) (Agricultural Chemical Registration Data, 2001).
5 Germ cell mutagenicity	Not classified	-	-	-	The substance was regarded as outside the categories because the micronucleus test in mouse bone-marrow was negative (Agricultural Chemical Registration Data, 2001). The in vitro reverse mutation test and the in vitro chromosome aberration test were also negative.
6 Carcinogenicity	Not classified	-	-	-	Skin keratoacanthoma increased at the 3000ppm of highest dose for males in rat carcinogenicity tests. But increase in the hyperplastic lesion was not observed, there was no difference with control group at the time of onset, it was a benign thing and not increased for females, so it was judged that it was not depended on a primary action of this substance (Agricultural Chemical Registration Data, 2001). So it was set as the outside of Category. In addition, it was concluded that there was no human carcinogenicity in the pesticide residues safety assessment committee.
7 Toxic to reproduction	Not classified	-	-	-	In the rat reproduction study and the rabbit teratogenicity test, there were no reproductive toxicity/teratogenicity (Agricultural Chemical Registration Data, 2001). So it was considered as on the outside of Category.

8	Specific target organs/systemic toxicity following single exposure	Classification not possible	-	-	-	Insufficient data available.
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	In the subacute toxicity test the mixed feed administration during three months in rat or mouse, liver weight increase was observed in both animals at 4000 ppm (more than 200mg/kg/day) (Agricultural Chemical Registration Data, 2001). Because the observed results was out of the guidance value of Category 2, it could not be classified.
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 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 96-hour LC50=8100microg/L of fishes (Rainbow trout) (MOE Risk Assessment No.2, 2003).
11 Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Classified into Category 2, since acute toxicity was Category 2 and supposed not rapidly degrading (BIOWIN), though supposed less bio-accumulative (log Kow=2.88(PHYSPROP Database, 2005)).