

## GHS Classification

**ID1133**

**isopropyl 3-[[ethyloamino)methoxyphosphinothioyl]oxy]crotonate**

**CAS 31218-83-4**

Date Classified: Sep. 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	Classification not possible	-	-	-	Not classified because of no appropriate data, though the substance contains unsaturated C-C bonds as chemical groups associated with explosive properties present and has its oxygen balance calculated at -173.5, higher than -200 of the criteria.
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	-	-	-	Flash point: 172-178degC( >93degC) (NIPPON KAYAKU CO.)
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 unsaturated C-C bonds and P-O bonds as chemical groups with explosive or self-reactive properties present
9 Pyrophoric liquids	Not classified	-	-	-	From the flash points of 172 - 178 degC (our database (Nippon Kayaku co.)), the ignition points is judged to be 70 degC or more.
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	-	-	-	Based on that aqueous solubilities measurement is performed (drugs application materials and Pesticide Manual), it is judged that it is stable in the neutral 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 3	Skull and crossbones	Danger	Toxic if swallowed	When we compared the LD50 values for male and female rats in two Oral Toxicity tests, the values were LD50 = 94.2mg/kg and LD50 = 96.4mg/kg respectively (drug application materials). Based on the lower of these two values, the substance was classified as Category 3.
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Based on lower rabbit LD50 = 486.4mg/kg (application documents for United States pesticide registration) among LD50s of rat and rabbit, it was set as Category 3.
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 4	Exclamation mark	Warning	Harmful if inhaled	If the lower one is taken among rat LC50 values of both sex in 4-hour inhalation toxicity study, they are LC50 = 3.02mg/L and LC50 = 3.3mg/L, respectively (drugs application materials). And it was set as Category 4 based on the lowest value LC50=3.02 mg/L.
2 Skin corrosion / irritation	Not classified	-	-	-	It carried out the outside of Category based on the description that each of erythema / crusta, or average scores of dropsy are less than 1.5 in two examinations in rabbits (drugs application materials, United States pesticide registration application documents).
3 Serious eye damage / eye irritation	Not classified	-	-	-	There is the descriptions in two examinations in the rabbit that acne cornea or opacity are not observed, iris is normal, no affluxion and edema are observed in conjunctiva (the documents of approval of new drug applications, the documents of United States registration application of insecticide). So it was not classified.
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: no data available. Skin sensitization : with the positive rate is 20% (drugs application materials) in the skin sensitization study (with adjuvant) by the Maximization method using a guinea pig, and the delayed hypersensitivity reaction examination results (without adjuvant) by the Buehler method, it is based on the description (United States pesticide registration application documents) that it is negative, it carried out the outside of Category.

5	Germ cell mutagenicity	Not classified	-	-	-	There is no data of human administration cost epidemiology, an administration cost mutagenicity test, and a productive cell in vivo mutagenicity test. Based on the statement (United States pesticide registration application documents) with negativity by the somatic cell in vivo mutagenicity test (in vivo chromosomal aberration test using the bone marrow cells of a rat). So it carried out the outside of Category.
6	Carcinogenicity	Not classified	-	-	-	Since in carcinogenicity test in rat and mouse treatment-related increased tumor was not observed (documents of approval of drug applications, documents of United States pesticide registration application), it was out of Category.
7	Toxic to reproduction	Not classified	-	-	-	In the reproduction test of a rat, effect of reproduction of dam and childcare, next-generation growth, development, and reproduction is not admitted by medication of the certain intoxicating dose in before pregnancy and beginning pregnancy, an organic formative period, a perinatal period, and the lactation period. But there is a description (drugs regulatory filing documents and U.S. pesticide registration application documents) that teratogenicity was not admitted by medication of the certain intoxicating dose in teratogenicity test of rabbit. Based on the above mentioned description, it carried out the outside of Category.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (systemic toxicity, nervous system)	Health hazard	Danger	Cause damage to organs (systemic toxicity, nervous system)	Symptoms, such as decrease in locomotor activity, ataxic gait, gait difficulty, tremors, lacrimation, salivation, constriction of the pupils, irregular breathing and convulsions, were observed in single-dose studies in rats and mice. The substance was classified as Category 1 (systemic, nervous system) based on the report that all those symptoms were observed at dosages (62.4-116.1mg/kg or 1.1-8.6mg/L) within the guidance values for Category 1 (drug application materials, U.S insecticide registration application materials).
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	It was considered that it cannot be classified based on the description that although in oral administration with the dose (0.34-0.70 mg/kg) of guidance value within the range of Category 1 to a rat, or in oral administration with the dose (0.176-0.692 mg/kg) of guidance value within the range of Category 1 to dog, inhibition of hemocyte and brain cholinesterase activity were observed and other toxic phenomena were not observed (documents of applications for drugs, registration application for pesticide in United States).
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 LC50=0.0033mg/L of Crustacea (Daphnia magna), and others (the examination for the U.S. insecticide application, 1990).
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=3.82(PHYSPROP Database, 2005)).