

GHS Classification

ID591

Parathion, methyl-

CAS 298-00-0

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	Classification not possible	-	-	-	No data available
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	Not classified	-	-	-	Not classified because of "Non-combustible" (ICSC (1997))
8 Self-reactive substances and mixtures	Classification not possible	-	-	-	No data available
9 Pyrophoric liquids	Not applicable	-	-	-	Solid (GHS definition)
10 Pyrophoric solids	Not classified	-	-	-	There are statements like "it burns but ignites easily." (NAEGR (J) (2001)) or like "Not flammable at normal temperature" (HSDB (2005)), and even if it contacts air at room temperature, it does not ignite spontaneously.
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Since the melting points are 37 - 38 degC (Merck (13th, 2001)), and 140 degC or less, the test for which it was suitable has not been established.
12 Substances and mixtures, which in contact with water, emit flammable gases	Classification not possible	-	-	-	No data available
13 Oxidizing liquids	Not applicable	-	-	-	Solid (GHS definition)
14 Oxidizing solids	Classification not possible	-	-	-	No data available
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 2	Skull and crossbones	Danger	Fatal if swallowed	Since the sexual differences which exceed the differences between examinations in rat LD50 value (EHC 145 (1993), ATSDR (2001), JMPR 902 (1995)) of 15 examples which were made to classification target is not observed, It was set as Category 2 based on 11.2 mg/kg obtained by statistical calculation to male and female.
1 Acute toxicity (dermal)	Category 2	Skull and crossbones	Danger	Fatal in contact with skin	The statistical work including male and female was done and 66.4mg/kg was obtained. (In the LD50 value using eight rats (EHC 145 (1993), ATSDR (2001), JMPR 902 (1995)), the sexual differences which exceed the examinations difference was not observed.) On the other hand, there was rabbit LD50 = 300mg/kg. It was set as Category 2 since lower calculated rat value 66.4mg/kg was adopted.
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 2	Skull and crossbones	Danger	Fatal if inhaled	The sexual differences which exceeds the difference during an examination on 11 rat LC50 value (EHC 145 (1993), ATSDR (2001), JMPR 902 (1995)) is not acknowledged. It was set as Category 2 based on 0.0611mg/L calculated by statistical work including males and females.
2 Skin corrosion / irritation	Category 3	-	Warning	Causes mild skin irritation	In rabbit skin application test, descriptions "although very slight to moderate erythema was observed, all recovered within 48 hours" and "mild irritation" are found. Therefore it was classified as Category 3.
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Based on the description (JMPR 902 (1995)) of "mild redness was acknowledged, but it recovered in 48 hours" for rabbit eye drop, it was set as Category 2B.
4 Respiratory/skin sensitization	respiratory sensitization: Classification not possible; Skin sensitization: Not	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	[Respiratory sensitization] It cannot be classified. [Skin sensitization] Based on the fact that sensitizing was not observed in the guinea pig skin sensitization test of Magnusson-Kligman(JMPR 902 (1995)) , and that sensitizing was not also found from the result of having examined the possibility of allergy in 200 humans (EHC 145 (1993)), it was put outside of the Category.

5	Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	The substance was classified as Category 2. Based on the positive results from the in vivo micronucleus test in rats and mice and the in vivo chromosome aberration test in rats (both are in vivo mutagenicity tests in somatic cells) (ATSDR (2001), EHC 145(1993)). The results of the epidemiological studies indicating the abnormal increases of chromosome aberrations in exposed human peripheral blood lymphocytes (ATSDR (2001), EHC 145(1993)) also support this classification.
6	Carcinogenicity	Not classified	-	-	-	Since it is classified into 3 according to IARC (1987) and was classified into A4 according to ACGIH (1996), respectively, it carried out the outside of Category.
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	In the three-generation reproduction study of rats, decreased number of litter size and reduction of litters viability were observed (EHC 145 (1993)) and with exposures in pregnancy, increased embryo absorption and embryo loss in post-implantation are also observed (JMPR 902 (1995), JMPR 902 (1995), ATSDR (2001)). Although there is also a report which is not mentioned about the general toxicity in the parental animals at such effective dosage, there are reports about the facts of inhibition of weight gain in mother animal, and development of cholinergic symptom(JMPR 902 (1995), ATSDR (2001)). Therefore, it was classified into Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system)	Health hazard	Danger	Cause damage to organs (nervous system)	Both humans and animals caused a significant reduction in cholinesterase activity by exposure to methyl parathion (EHC 145 (1993), PATTY (5th, 2001), ATSDR (2001)), and showed the neural symptoms of cholinergic property as a result (PATTY (5th, 2001), ATSDR (2001)), and have resulted in death (ATSDR (2001)). With reference to the guidance value from the dose which marked a significant reduction in cholinesterase activities in the single exposure test to the rat, it was set as Category 1 (nervous systems).
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	Inhibition of the cholinesterase activities is looked by exposure regardless of an animal species or an administration route (EHC 145 (1993), JMPR 902 (1995), ATSDR (2001)). When the influence is strong, within the dose which is equivalent to the guidance value Category 1, it has affected neurologic symptoms such as a tremor and hyperactivity (JMPR 902 (1995), ATSDR (2001), EHC 145 (1993)), or peripheral neuropathy (sciatic nerve) is observed histopathologically (EHC 145 (1993), JMPR 902 (1995)). Moreover, inhibition of the cholinesterase activities is mainly reported not a little in humans by occupational exposure (EHC 145 (1993), ACGIH (2001)). It was classified to as Category 1 (nerve systems) based on the above facts.
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=0.14microg/Lof Crustacea (Daphnia magna) (EHC 145 and 1993) .
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=2.86(PHYSPROP Database, 2005)).