

GHS Classification

ID592

paraquat–dimethylsulfate

CAS 2074–50–2

Date Classified: Jun. 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	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	Not classified	–	–	–	Non-combustible
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-combustible
11 Self-heating substances and mixtures	Not classified	–	–	–	Not combustible.
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 classified	–	–	–	It does not contains fluorine and chlorine. Although it contains oxygen as sulfate ester, this nonion is not considered as an oxidizer.
15 Organic peroxides	Not applicable	–	–	–	Containing no –O–O– structure
16 Corrosive to metals	Classification not possible	–	–	–	Test methods applicable to solid substances are not 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	Statistics calculation of the data (ACGIH (2001), EHC 39 (1984)) of four examinations was done, and 230.3mg/kg was obtained. It is set as Category 3.
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Statistics calculation of three data (ACGIH (2001), EHC 39 (1984)) was done, and 214.5mg/kg was obtained. It is set to Category 3.
1 Acute toxicity (inhalation: gas)	Not applicable	–	–	–	Solid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	–	–	–	There is no acute inhalation test data for steam, and it cannot be classified. Vapor pressure is very low and a fatal dose of steam will not be generated at normal temperature.
1 Acute toxicity (inhalation: dust, mist)	Category 1	Skull and crossbones	Danger	Fatal if inhaled	It was set as Category 1 since all three data (ACGIH (2001), EHC 39 (1984)) were 0.05mg/L or less except the time when dust sizes is large.
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Since there was information that it stimulated human skin (ACGIH (2001)) and animal skin (EHC 39 (1984)), it was classified as "Category 2." In repeated exposure, skin necrosis is also seen on rats and mice. (EHC 39(1984))
3 Serious eye damage / eye irritation	Category 2B	–	Warning	Causes eye irritation	The stimulus of the eye was reported with humans (ACGIH (2001)) and rabbits (EHC 39 (1984)). But the rabbit had recovered in 4 days, it was set to "Category 2B."
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)-	About respiratory sensitization, there is no information and it cannot be classified. About skin sensitization: It was put "outside of the Category" because there is a report that sensitization was not observed with guinea pigs (EHC 39 (1984)).
5 Germ cell mutagenicity	Not classified	–	–	–	The substance was regarded as "outside the categories". Because there are negative results from dominant lethal tests in mice and in vivo bone-marrow tests (EHC 39 (1984)). No positive results have been found in in vitro tests either.
6 Carcinogenicity	Classification not possible	–	–	–	Since paraquat has been classified into C by EPA, it becomes the outside of Category. However, about methyl sulfates of counterion, each evaluation agencies has categorized dimethyl sulfates analogue into carcinogenic. The evaluation about Paraquat = 2 methyl hydrogen sulfate has not been performed.
7 Toxic to reproduction	Not classified	–	–	–	Since there is no bad effect in oral administration experiment in three generation of rat (EHC 39 (1984)), it is considered as "out of the Category."
8 Specific target organs/systemic toxicity following single exposure	Category 1 (kidneys, liver, respiratory)	Health hazard	Danger	Cause damage to organs (kidneys, liver, respiratory)	Kidney, liver, and lungs were common with each recovery case of the human accident exposure (EHC 39 (1984)). Since the respiratory disorders are mentioned in examples of accidents (ACGIH (2001)), lungs were unified with this and put to "Category 1 (kidney, liver, respiratory system)."

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (lung, kidneys, liver)	Health hazard	Danger	Causes damage to organs (lung, kidneys, liver) through prolonged or repeated	It was classified to as Category 1 (lungs, kidney, liver), because of the harmful effects in lungs, kidney, and liver by serum chemistry (ChE, GPT) and by pathological examination (EHC 39 (1984)) in the repeated oral administration experiment for rats within the guidance value of Category 1.
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)	Classification not possible	-	-	-	No data available
11 Hazardous to the aquatic environment (chronic)	Classification not possible	-	-	-	No data available.