

GHS Classification

ID1158

Quinoline

CAS 91-22-5

Date Classified: Jul. 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	-	-	-	There was information with 59 degC (NFPA, 13th, 2002), 99 degC (Closed Cup) (HSDB, 2003), and 105 degC (ICSC (J), 1993) for flash point (ascending order). If it is 59 degC, it is Category 3; however, according to UNRTDG No. (2656), it is classified as 6.1 and III. Since 3 was not assigned, 99 degC (Closed Cup) (HSDB, 2003) was adopted, and it was considered as out of Category.
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	-	-	-	UNRTDG is classified into 6.1 and III according to the U.N. number (2656) peculiar to a substance. Since 4.2 was not attached, it carried out the outside of Category.
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 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	-	-	-	Organic compounds containing no oxygen, 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	-	-	-	UNRTDG is classified into 6.1 and III according to the UNRTDG No. (2656). Although 8 is not attached, since the data which negates corrosion behavior is not found, it cannot be classified.

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	Of the LD50 values in rats of 331mg/kg and 460mg/kg (PATTY (5th, 2001), RTECS (2004), HSDB(2003) and IUCLID (2000)), we adopted the lower value to classify the substance as Category 4.
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	It was set as Category 3 based on rabbit LD50 = 590mg/kg (converted from 0.54ml/kg) (PATTY (5th, 2001), RTECS (2004), IUCLID (2000)).
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)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	It was set as category 2 from the statement that there is irritation of a degree (Moderate) in the middle to skin of rabbits (PATTY (5th, 2001), RTECS (2004)) and the description that human skin are stimulated (ICSC (J) (1993), HSDB (2003)).
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Due to the descriptions that it irritates to the eye of rabbit moderately to severely (PATTY (5th, 2001), IUCLID (2000)), and that it irritates to the human eye (HSDB (2003), ICSC (J), (1993), SITTIG (4th, 2002)), it was classified into Category 2A.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	No data available

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)	Positive finding is seen in the in vivo small core test using mouse bone marrow cells, in the gene mutation test using mice liver, and the chromosome aberration test using rat hepatic cells (all are IRIS(s) (2001)). So it is classified into Category 2 according to classification guidelines flow.
6	Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Since it was categorized into B-2 according to the guideline in 1986 in EPA (IRIS (2001)), it was classified into Category 2.
7	Toxic to reproduction	Classification not possible	-	-	-	No data available
8	Specific target organs/systemic toxicity following single exposure	Category 2 (respiratory)	Health hazard	Warning	May cause damage to organs (respiratory)	Since there was description that in Priority 2, a cough, stuffiness, and breathlessness were produced by human exposure of this product and pulmonary edemas and the dyspnea by respiratory muscle paralysis are caused (HSDB (2003), ICSC (J), (1993), SITTIG (4th, 2002)) in high exposure, it was considered as Category 2 (respiratory systems).
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (liver, eye(retina))	Health hazard	Warning	May cause damage to organs (liver, eye(retina)) through prolonged or repeated exposure	Because of the reports in Priority 1 and 2 that the effects on rats liver (vascular neoplasm of liver, an increase in liver weight, and bile duct proliferation) at doses classified as Category 2 for guidance values (PATTY (5th, 2001), IUCLID (2000)), and of the description in Priority 2 of the effects on human livers and eyes (retinae) (ICSC(J) (1993), HSDB (2003), SITTIG (4th, 2002)), it was classified into Category 2 (liver, eye (retina)).
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 3	-	-	Harmful to aquatic life	It was classified into Category 3 from 48-hour EC50=25mg/L of Crustacea (Daphnia magna) (MOE eco-toxicity tests of chemicals, 1995).
11 Hazardous to the aquatic environment (chronic)	Category 3	-	-	Harmful to aquatic life with long lasting effects	Classified into Category 3, since acute toxicity was Category 3 and not rapidly degrading (BOD: 0.2% (existing chemical safety inspections data)), though less bio-accumulative (BCF=3.8 (existing chemical safety inspections data)).