

GHS Classification

ID869

Naphthalene

CAS 91-20-3

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	-	-	-	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	Category 2	Flame	Warning	Flammable solid	UNRTDG Class: 4.1: PG III
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	-	-	-	Flash point: 526degC (NFPA, 12th, 1997, p49-93)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Test methods applicable to liquid or solid substances at 140degC 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	-	-	-	Containing no oxygen , chlorine and fluorine.
15 Organic peroxides	Not applicable	-	-	-	Containing no -O-O- structure
16 Corrosive to metals	Classification not possible	-	-	-	Liquid at a test temperature, 55degC. 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 4	Exclamation mark	Warning	Harmful if swallowed	Rat LD50 value : Caluculation was applied based on the following data: About 1800mg/kg (ACGIH 7th, 2001), 1780mg /kg (DFGOT vol.11, 1998), 9430mg /kg (DFGOT vol.11, 1998, CERI Hazard Data, 1997, NTP TR500, and 2000), 1110mg/kg (DFGOT vol.11, 1998, EHC 202, 1998, NTP TR500, 2000), 2200mg/kg(DFGOT vol.11, 1998, EHC 202, 1998, ATSDR, 2003), > 2000mg /kg (EU RAR, 2003), 2300mg/kg (EU RAR, 2003), 490mg/kg (CERI Hazard Data, 1997, EHC 202, 1998), 1250mg/kg (EHC 202, 1998), 1800mg/kg (EHC 202, 1998), and 2600mg/kg (ATSDR, 2003). Since the calculated values was 1157mg/kg, this value was classified to category 4.
1 Acute toxicity (dermal)	Not classified	-	-	-	From rat LD50 value: >2500mg/kg (CERI Hazard Data, 1997, EHC 202, 1998, NTP TR500, 2000), rabbit LD50 value: >2000mg/kg (EU RAR, 2003, and CERI Hazard Data, 1997), and the description that death was not observed in a rat at 2500mg/kg (EU RAR (2003)), and description that death was not observed in a rabbit at 2000mg/kg (ATSDR (2003)), 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	-	-	-	Since there are only descriptions that rat LC50 (1 hour) value: >65ppm (4-hour equivalent: 0.17mg/L) (CERI Hazard Data (1997)) and rat LC50 (8 hours) value: >0.5mg/L (4-hour equivalent: >0.7mg/L) (NTP TR500 (2000)), data was insufficient for specifying Category. And it was presupposed that it cannot be classified.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 3	-	Warning	Causes mild skin irritation	It was set as Category 3 from description that mild irritation was admitted in the test applied to the rabbit skin (DFGOT (vol.11, 1998), EU RAR (2003), EHC 202 (1998), ATSDR (2003)).
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	There is the description that in the test applied to the eye of the rabbit, the mild irritation recovered within seven days was acknowledged (EU RAR (2003) and ATSDR (2003)). So it was set as Category 2B.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Category 1	(Respiratory sensitization)-; (Skin sensitization)Exclamation mark	(Respiratory sensitization)-; (Skin sensitization)Warning	(Respiratory sensitization)-; (Skin sensitization)May cause allergic skin reaction	Respiratory organ: No data Skin : We have the description that skin sensitizing property was not acknowledged in Buehler test and maximization test which used the guinea pigs in EU RAR (2003), however, based on the description of 2 cases in which the cutereaction was acknowledged by the intracutaneous test of DFGOT (vol.11, 1998) as influence to human and on the description that the frequency of allergic reactions against the naphthalenes is 0.13%, we classified it to be Category 1.
5 Germ cell mutagenicity	Not classified	-	-	-	Since there was a negative result with the micronucleus test on mouse erythrocyte which is an in vivo mutagenicity test using somatic cells (DFGOT vol. 11, 1998, EU RAR2003 and IARC82, 2002, IRIS1998, ATSDR2003), it was classified as out of Category.

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)	It was classified into A4 (ACGIH 7th, 2001) in ACGIH and CBD (IRIS, 2005) in EPA (1998). But it was classified into group 2B (IARC 82, 2002) in IARC, and the category 3 (EU-Annex I, 2005) in EU. So it was considered as Category 2 according to IARC which is latest assessment document.
7	Toxic to reproduction	Not classified	-	-	-	It was considered as out of Category based on the description that specific reproductive toxicity was not observed at the dose causing toxicity to maternal animals in a pregnant rat, mouse and rabbit oral administration examination (NTP DB (2005), DFGOT (vol.11, 1998), EU RAR (2003), IARC 82 (2002), EHC 202 (1998), IRIS (1998), ATSDR (2003), and ACGIH (7th, 2001)).
8	Specific target organs/systemic toxicity following single exposure	Category 1 (blood system); Category 2 (eye)	Health hazard	Danger; Warning	Cause damage to organs (blood system); May cause damage to organs (eye)	From description in ACGIH (7th, 2001), DFGOT (vol.11, 1998), EU RAR (2003), IARC 82 (2002), EHC 202 (1998), IRIS (1998), CERH Hazard Data (1997), NTP TR500 (2000), ATSDR (2003), and ACGIH (7th, 2001) that hemolytic anemia was seen in humans, it was set as Category 1 (blood). Moreover, from description ACGIH (7th, 2001), DFGOT (vol.11, 1998) and EHC 202 (1998) that cataract development was seen by the dosage of the guidance value range of Category 2 in the single-dose oral study which used the rabbits, it was set as Category 2 (eye).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (blood, eye, nose)	Health hazard	Danger	Causes damage to organs (blood, eye, nose) through prolonged or repeated exposure	Based on the description that hemolytic anemias was acknowledged by repeated inhalation of low concentrations exposure in humans (DFGOT (vol.11, 1998)), the description that in the occupational evidence of exposure, lens opacity was observed (ACGIH (7th, 2001), DFGOT (vol.11, 1998), EU RAR (2003), IRIS (1998), CERH Hazard Data (1997), NTP TR500 (2000) and ATSDR (2003)), and the description that in the inhalation exposure test using the rat, the change of olfactory epithelium was observed with the Category 1 guidance value range (EU RAR (2003)), it was classified into Category 1 (blood, eyes, nasal).
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 96-hour LC50=0.11mg/L of fishes (Rainbow trout) (CERH Hazard Data, 1997).
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, not rapidly degrading (BOD: 0% (existing chemical safety inspections data)), though less bioaccumulative (BCF=168 (existing chemical safety inspections data)).