

GHS Classification

ID941

Hexane

CAS 110-54-3

Date Classified: Mar. 23, 2006 (Environmental Hazards: Feb. 10, 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	Category 2	Flame	Danger	Highly flammable liquid and vapour	Flash point: <23degC, Initial boiling point: >35degC, UNRTDG Class: 3, PG II
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	-	-	-	Flash point: 225degC (ICSC (J), 2000)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	UNRTDG Class: 3
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	-	-	-	Containing no -O-O- structure
16 Corrosive to metals	Not classified	-	-	-	UNRTDG Class: 3

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	-	-	-	Rat Oral LD50 value=25000mg/kg (MOE Risk Assessment vol.1(2002)), 28700mg/kg (EHC 122 (1993), DFGOT vol.14 (2000), PATTY (4th, 1994), ATSDR (1999)), 32400mg/kg (EHC 122 (1993), DFGOT vol.14 (2000), ATSDR (1999)) and 15800mg/kg (EHC 122 (1993), DFGOT vol.14 (2000), ATSDR (1999)). Based on the above data, calculated value was applied for categorization. LD50 value calculation = 19634mg/kg
1 Acute toxicity (dermal)	Classification not possible	-	-	-	There was the description that death was seen in rabbits at 5 mL/kg (reduced value = 3297mg/kg) at PATTY (4th, 1994). But there was no information on LD50 value, it was not able to be classified since data was insufficient.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Not classified	-	-	-	Judging it as steam from steam pressure. Calculated based on rat inhalation LC50 (1 hour) = 77000ppm (4 hour equivalent: 38500ppm [135.46mg/L]) (EHC 122 (1993), DFGOT vol.14 (2000)), LC50 (4 hours) = 74000ppm (equivalent: 260.36mg/L) (EHC 122 (1993) and DFGOT vol.14 (2000)) and 48000ppm [equivalent: 168.88mg/L] (MOE Risk Assessment the 1st volume (2002)). But the calculated value was lower than the lowest value among these data, the lowest value (38500ppm [135.46mg/L]) was adopted. And based on this value, it was classified as out of Category.
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 description that skin irritation was seen in humans evidence of exposure (MOE Risk Assessment The 1st volume (2002), EHC 122 (1993), DFGOT vol.14 (2000), PATTY (4th, 1994), ATSDR (1999)).
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	We classified it as Category 2A-2B. Based on the description that the ocular irritant property was acknowledged in human exposure examples (MOE Risk Assessment 1st volume (2002)), and on the description that mild irritant property was acknowledged in the rabbits (DFGOT vol.14 (2000)). The level of irritation and resilience are unknown, therefore deliberate categorization was impossible.
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)-	Respiratory organ: No data. Skin : Although we have descriptions in which it is supposed that sensitizing was not acknowledged in EHC 122 (1993) and DFGOT vol.4 (1992) by Maximization test for 25 humans, we presupposed that we could not classify it since this report singularly is inadequate for considering it as a clear proof of there being no sensitizing property.
5 Germ cell mutagenicity	Not classified	-	-	-	There is negative result by the dominant lethal test using rodents (EHC 122 (1993), DFGOT vol.4 (1992), ATSDR (1999)), and by the micronucleus test using mammalian erythrocyte(ATSDR (1999)), and by the chromosomal aberration test using mammals marrow cells (DFGOT vol.4 (1992)), it carried out the outside of Category.

6	Carcinogenicity	Classification not possible	-	-	-	Since it is not evaluated in the institution indicated in the technical indicator, it cannot be classified.
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	It was considered as category 2 since there is description that the organization injury of the testis accompanied by inhibition of spermatogenesis is observed by inhalation exposure to a rat (EHC 122 (1993), DFGOT vol.4 (1992), IRIS (Access on July 2005) and ATSDR (1999)), and in 1000ppm exposure effect is observed in a testis, muscular atrophy (DFGOT vol.4 (1992)) and weight loss (ATSDR (1999)) were also shown.
8	Specific target organs/systemic toxicity following single exposure	Category 3 (narcotic effects, respiratory tract irritation)	Exclamation mark	Warning	May cause respiratory irritation or may cause drowsiness and dizziness (narcotic effects, respiratory tract irritation)	Although there is descriptions in EHC 122 (1993), ACGIH (7th, 2001), DFGOT vol.4 (1992), and PATTY (4th, 1994) referring to confirmation of giddiness, central nervous system depressant, etc. as acute inhalation toxicity in humans, it was judged that these effects were caused by anesthetic actions. Moreover, it was judged as Category 3 because of descriptions in ACGIH (7th, 2001) and PATTY (4th, 1994) referring to confirmation of respiratory irritant caused by inhalation exposure to humans, and of a description in PATTY (4th, 1994) referring to confirmation of anesthetic actions.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (central nervous system, peripheral nervous system)	Health hazard	Danger	Causes damage to organs (central nervous system, peripheral nervous system) through prolonged or repeated exposure	Based on the description that polyneuropathy (disorder of sensory nerve and motor nerves) is observed in human chronic exposure examples (MOE Risk Assessment The 1st volume (2002), EHC 122 (1993), ACGIH (7th, 2001), DFGOT vol.14 (2000), PATTY (4th, 1994), IRIS (2005), Japan Society for Occupational Health advice (1993), and ATSDR (1999)), target organs were judged to be central nervous systems and peripheral nervous systems, and we categorized it as Category 1.
10	Aspiration hazard	Category 1	Health hazard	Danger	May be fatal if swallowed and enters airways	Since it is a hydrocarbon and the dynamic viscosity at 40 degrees C is 20.5mm ² /s or less, we classified it as Category 1. There was description of chemical pneumonia by the Aspiration in the rat (DFGOT vol.4 (1992)).

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Category 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 48-hour LC50=3.88mg/L of Crustacea (Daphnia magna) (EHC122, 1991).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since rapidly degrading (BOD: 100% (existing chemical safety inspections data)), and less bio-accumulative (log Kow=3.9 (PHYSPROP Database, 2005)).