

GHS Classification

ID173

Nitroglycerin

CAS 55-63-0

Date Classified: May 24, 2006 (Environmental Hazards: Mar. 23, 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	Unstable Explosive	-	-	-	UNRTDG, explosive substance assumed to be a transportation prohibition
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	-	-	-	UNRTDG, explosive substance assumed to be a transportation prohibition
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not applicable	-	-	-	It is classified into unstable explosive.
9 Pyrophoric liquids	Not applicable	-	-	-	It is known not to ignite spontaneously from the experience of manufacturing or in treatment, even if it contacts air in room temperatures.
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	UNRTDG, explosive substance assumed to be a transportation prohibition
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 classified	-	-	-	UNRTDG, explosive substance assumed to be a transportation prohibition
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
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 3	Skull and crossbones	Danger	Toxic if swallowed	Although calculated based on rat oral LD50 value = 100mg/kg (CERI Hazard Data (2001)), 120mg/kg (CERI Hazard Data (2001)) and 822mg/kg (PATTY (1994)), the calculation values were lower than the lowest value of these data. Therefore 100mg/kg of the lowest value was adopted and it was set as Category 3.
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on rat percutaneous LD50 value >29200mg/kg (CERI Hazard Data (2001)), it was set as the outside of Category.
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	Classification not possible	-	-	-	Classification not possible due to lack of data
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	Although PATTY (1994) has the description with having no eye stimulativeness by application of the 7.29% of concentration solution to a rabbit, an eye is stimulated in humans (ICSC (J) (1995), HSFS (2001), and SITTIG (2002)). So it was set as Category 2A-2B.
4 Respiratory/skin sensitization	respiratory sensitization: Classification not possible; Skin	-	-	-	Respirator: No data. Skin : Classified as Category 1 because PATTY (1994) describes that the Maximization test using guinea pigs found reactions in 40% of the animal.
5 Germ cell mutagenicity	Not classified	-	-	-	The substance was regarded as outside the categories based on the record of the negative dominant lethal test in rats (PATTY(1994)).
6 Carcinogenicity	Classification not possible	-	-	-	Classification not possible due to lack of data
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the undorn child	Although there is no effect to reproductive potential of F0 in three generation reproduction study of rat (HSDB (2005)), there is the increase of testicular interstitial cells and infertility by decreased hypoplasia in the male of the next generation in high dose group. And it was considered as in the Category 2.

8	Specific target organs/systemic toxicity following single exposure	Category 1 (cardiovascular system, blood system)	Health hazard	Danger	Cause damage to organs (cardiovascular system, blood system)	Due to the descriptions that hypotension and methaemoglobinaemia were reported as an acute intoxication in CERI Hazard Data (2001) and industrial hygiene academic society advice (1986), that the hypotension in inhalation exposure example of the mixture of nitroglycerin and EGDN was observed in ACGIH (2001) and industrial hygiene academic society advice (1986), and that it caused the angina in CERI Hazard Data (2001). So it is considered that the target organs are cardiovascular systems and blood, therefore, they were classified into Category 1. The intense headaches observed by occupational exposure was considered to be the secondary effect of this cerebral expansion.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (cardiovascular system)	Health hazard	Danger	Causes damage to organs (cardiovascular system) through prolonged or repeated exposure	Due to the description that in the epidemiological study of occupational exposure example in CERI Hazard Data (2001), ACGIH (2001), PATTY (1994) and industrial hygiene academic society advice (1986), high mortality by the cardiovascular and cerebrovascular disease is reported, it is considered that target organ is cardiovascular system, and it was classified into Category 1. The headach observed by occupational exposure was considered to be the secondary effect of the cerebrovascular expansion.
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 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 96-hour LC50=1.38mg/L of fishes (Bluegill) (CERI Hazard Data, 2002).
11 Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Classified into Category 2, since acute toxicity was Category 2, and supposed not rapidly degrading (BIOWIN), though supposed less bio-accumulative (log Kow=1.62(PHYSPROP Database, 2005)).