

GHS Classification

ID597

Nitric acid

CAS 7697-37-2

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 classified	-	-	-	Not an explosive product, though containing chemical groups associated with explosive properties present.
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	-	-	-	Non-combustible (Hommel, 1991).
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not applicable	-	-	-	Although it excludes the grouping relevant to autoreactive in a molecule and includes atomic team which relates to explosibility, it is classified into the oxidizing liquid. So it is excepted from the definition of autoreactive from the statement of the GHS documents 2.8.1.
9 Pyrophoric liquids	Not classified	-	-	-	Non-combustible (Hommel, 1991)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Non-combustible (Hommel, 1991)
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	Category 3	Flame over circle	Warning	May intensify fire; oxidizer	Category 3 because of UNRTDG Subsidiary risks Class: 5.1, PG III, though it is a strong oxidizing agent (NFPA, 13th, 2002)
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Inorganic compound
16 Corrosive to metals	Classification not possible	-	-	-	There is no data and it cannot be classified, (a stainless steel, aluminum, and glass are durable as a container. Steels, Monel metal, nickels and coppers are corroded. There is a description as (Hommel (1991)) and it is presumed as

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Classification not possible	-	-	-	Although there is a lethal (IUCALD (2000)) statement of 430 mg/kg in humans, there is no other data and it cannot be classified.
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
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)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	Nitric acid did not exist as steam and gas, and it considered that all the data of LC50 was mist. Since all of five data were within the range of 0.05 - 0.5mg/L, it was set as Category 2.
2 Skin corrosion / irritation	Category 1A	Corrosion	Danger	Causes severe skin burns and eye damage	There is a description of corrosivity on humans (ICSC (1994)) and (HSDB (2005)), and its UN classification is class 8I, it was classified as Category 1A.
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	There is a statement that if exposed to the human eye, severe burns will take place, and muddiness of a cornea and visual impairment result in vision loss (ACGIH (2001)). And it was set as Category 1 since skin corrosivity / irritation was categorized into Category 1A.
4 Respiratory/skin 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	Classification not possible	-	-	-	Although there is a report of negative results from the in vitro Ames test (DFGOTvol.3 (1991)), the substance cannot be classified because there are no reports about in vivo tests.
6 Carcinogenicity	Classification not possible	-	-	-	There is a result in the inhalation exposure test report of two cases using rats that shows no carcinogenicity (DFGOTvol.3 (1991), (IUCALD (2000)). But there is no report of evaluation organizations, such as IARC, therefore it

7	Toxic to reproduction	Classification not possible	-	-	-	Although there is the description that teratogenicity and ferotoxicity does not occur and there is only a slight ossification inhibition of cranial bone in embryo in the drinking water administration test to pregnancy rat (IUCRID (2000)), but it is considered as insufficient data for classification, and it is considered as it cannot be classified.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory)	Health hazard	Danger	Cause damage to organs (respiratory)	According to the statements that when humans inhale the steam generated from nitrate, irritation of the upper airway, coughing, breathing difficulty, pain of the breast or pulmonary are caused depending on the exposure concentration and exposure time (ACGIH (2001), DFGOTvol.3 (1991), ICSC(J), (1994), and HSDB (2005)). So it was classified into Category 1. (respiratory systems).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (tooth, respiratory organs)	Health hazard	Danger	Causes damage to organs (tooth, respiratory organs) through prolonged or repeated	According to the statement of the chronic bronchitis by occupation exposure of the steam generated from mist or nitric acid (ACGIH (2001)) and erosion of tooth (ACGIH (2001), (DFGOTvol.3 (1994))), it was classified to as Category 1 (tooth, respiratory system).
10	Aspiration hazard	Category 1	Health hazard	Danger	May be fatal if swallowed and enters airways	It was classified into Category 1 based on the statement that of chemical lobar pneumonia by aspiration (ACGIH (2001)).

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Classification not possible	-	-	-	Insufficient data available.
11 Hazardous to the aquatic environment (chronic)	Classification not possible	-	-	-	Classification not possible due to lack of data