

GHS Classification

ID170

nitrilotriacetic acid

CAS 139-13-9

Date Classified: Sep. 1, 2005 (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	Not classified	-	-	-	Non-combustible (ICSC (J), 1994; Weiss, 2nd, 1986, p735)
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	-	-	-	Non-combustible (ICSC (J), 1994; Weiss, 2nd, 1986, p735)
11 Self-heating substances and mixtures	Not classified	-	-	-	Non-combustible (ICSC(J) (1994), Weiss (2nd 1986) p735)
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	-	-	-	Organic compounds containing oxygen (but not chlorine and fluorine) and the oxygen is chemically bonded only to carbon and hydrogen (but not to other elements).
15 Organic peroxides	Not applicable	-	-	-	Containing no -O-O- structure
16 Corrosive to metals	Classification not possible	-	-	-	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	Since rat LD50s were 1100mg/kg (NTPS, 2005), 1100 to 1470 mg/kg (CERI Hazard Data (2002)), 1470mg/kg(BUA(1986)), and SITTIG (4th, 2002) ,and any LD50 was within the scope of Category 4, it was set as Category 4.
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Solid (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	There are descriptions that it irritates human skin (HSFS (2001), SITTIG (2002)), and "As this article is a strong acids, it is supposed to have irritation. There is no laboratory reports." (CERI Hazard Data (2002)). So it was classified as Category 2.
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	Since there is description that eye irritation is admitted in humans in HSDB (2005), and there is description of "Since this substance is a strong acid, it is guessed that it has irritation. There is no laboratory reports." in CERI Hazard Data(2002), it was referred to as Category 2A-2B.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	No data available
5 Germ cell mutagenicity	Category 1B	Health hazard	Danger	May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Although the dominant lethal tests using mice cited in IARC 73 (1999) and CERI Hazard Data (2002) are negative, it is recorded that the in vivo chromosome aberration test using mouse spermatogenic cells was positive. So the substance was classified as Category 1B.

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 is classified into group 2B in IARC (IARC 73 (1999)) and Japan Society for Occupational Health (Japan Society for Occupational Health recommendation (2005)) and is classified into group R according to NTP (NTP RoC (11th, 2005)). So it was set as Category 2.
7	Toxic to reproduction	Not classified	-	-	-	In the teratogenicity studies of the rat administration in drinking water, there are descriptions that although hydronephrosis and bladder disorders were observed in the embryo, there was no influence in growth of embryo, fetuses, and offspring. (IARC 73 (1999) and CERH Hazard Data Description (2002)). Moreover, in the teratogenicity test of administration in drinking water to a mouse, feeding administration to a rat, and oral administration to a rabbit, there are descriptions that there is no fetal malformations, and no influences on growth of the reproductive function and potential, and offspring development in the two-generation reproduction study in a rat. These were judged as minimum influence to the reproductive function and potential, and fetus. Therefore, it was out of the Category.
8	Specific target organs/systemic toxicity following single exposure	Classification not possible	-	-	-	Insufficient data available.
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (kidneys)	Health hazard	Warning	May cause damage to organs (kidneys) through prolonged or repeated exposure	There is no case report in human and in IARC 48 (1990) and CERH Hazard Data (2002) in orally and mixed feed administration for 28 – 90 days to rat or mouse, vacuolation of proximal convoluted tubule epithelial cells, the increase and erosion of interstitial transitional epithelium, and hydronephrosis were reported, and in IARC 48 (1990) it has the nephrotoxicity, due to these descriptions it is considered that target organ was the kidney, and it was classified into Category 2.
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 72-hour ErC50=46000microg/L of algae (Green algae) (MOE Risk Assessment No.3, 2004).
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: 1% (existing chemical safety inspections data)), though less bio-accumulative (BCF=131 (existing chemical safety inspections data)).