

GHS Classification

ID789

Benzene, dinitro-

CAS 25154-54-5

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 classified	-	-	-	Not classified in UNRTDG Class: 1, though containing nitro groups.
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	Classification not possible	-	-	-	No data (by test methods of UN) available
8 Self-reactive substances and mixtures	Classification not possible	-	-	-	The grouping in connection with autoreactive is not included. Although the grouping in connection with explosibility is included, there is no data of laboratory tests and it cannot be classified. (It is not contained in the U.N. number 3221-3241, and is not the banned substances for carriage, either. Type G is presumed.)
9 Pyrophoric liquids	Not applicable	-	-	-	Solid (GHS definition)
10 Pyrophoric solids	Not classified	-	-	-	Flash point: 470degC (ICSC (J), 2001) and non-pyrophoric at a room temperature.
11 Self-heating substances and mixtures	Classification not possible	-	-	-	No data 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 classified	-	-	-	Containing no halogen. Not classified in UNRTDG Class: 5.1, though containing oxygen bonded to nitrogen.
15 Organic peroxides	Not applicable	-	-	-	Organic compounds 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 2	Skin and	Danger	Fatal if swallowed	There is a report at dinitrobenzene of rat LD50: 5 to 60 mg/kg (ACGIH (2001)), and it was set as Category 2.
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	-	-	-	There is no data, and it cannot be classified. (As vapor pressure is low, inhalation exposure is with mist or particulate)
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 classified as Category 3 from the statements of slight irritation in rabbit test (IUCLID (2000)) and skin irritation on humans (HSDB (2005)).
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Based on the statement that mild in the rabbit test (IUCLID (2000)), and that exposures stimulate the eyes in humans (IUCLID (2000)), it was set as Category 2B.
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)-	No data available
5 Germ cell mutagenicity	Classification not possible	-	-	-	There was no mixture data. For the isomers, there was positive in vitro data, however, there was no in vivo data. Therefore we presupposed that we could not classify it.
6 Carcinogenicity	Classification not possible	-	-	-	Classification not possible due to lack of data and reports
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	It was classified into category 2 based on the description that testicular atrophy and oligospermia associated therewith were observed in the eight weeks administration test in drinking water (IRIS (2006)), and major effects were the influence on testicular toxicity and reproduction (PATTY (5th, 2001)).

8	Specific target organs/systemic toxicity following single exposure	Category 1 (blood system); Category 3 (respiratory tract irritation)	Health hazard; Exclamation mark	Danger; Warning	Cause damage to organs (blood system); May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation)	There is the description that exposure (including dermal exposure) causes methemoglobinemia, and headache, cyanosis, weakness, confusion, palpitation, nausea, vomiting, coma, etc.(ACGIH (2001), ICSC(J) (2001), HSDB (2005)), and it is classified into Category 1(blood). And there is the description about respiratory irritation (ICSC(J) (2002), HSDB (2005)), and it is classified into Category 3 (respiratory irritation).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (liver, blood, nervous system)	Health hazard	Danger	Causes damage to organs (liver, blood, nervous system) through prolonged or repeated exposure	Based on the statement that liver disorders, anemia, and methemoglobinemia are occurred by repeated exposure (ACGIH and (2001),ICSC (J)(2001),and HSDB (2005)), it was classified into Category 1 (liver, blood). Based on the statement that nervous systems are affected and occur visual disorder (ACGIH (2001), ICSC (J), (2001)), and that paresthesia on hand and foot by the obstruction of a peripheral nerve are occurred (HSDB (2005)), it was classified into Category 1 (nervous system)
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 96-hour LC50=12.7mg/L of fishes (Fathead minnows) (IUCLID, 2000).
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: 0% (existing chemical safety inspections data)), though less bio-accumulative (BCF=37.4 (existing chemical safety inspections data)).