GHS Classification

ID790 1,2-Dinitrobenzene

CAS 528-29-0 Date Classified: Jul. 24, 2006 (Environmental Hazards: Mar. 31, 2006)

Reference Manual: GHS Classification Manual (Feb. 10, 2006)

Physical Hazards

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: 150degC. 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 metaloids(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 -0-0- 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)	Classification not possible	–	–	–	There is no data and it cannot be classified. (LD50 value of dinitro derivatives of benzene has a statement of 5 to 60 mg/kg.)
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 pressureis 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 statement that it might stimulate human skin (HSDB (2005)).
3	Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	It was considered as Category 2A-B from the statement which stimulates an eye to humans (ICSC (J), (2002), HSDB (2005)). (In the case that subdividing for the indications, etc. are necessary, it is more desirable to be set as Category 2A from the viewpoint of safety.)
4	Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	No data available
5	Germ cell mutagenicity	Classification not possible	–	–	–	Although there was in vitro Ames test report, there was no in vivo report, therefore we could not classify it.
6	Carcinogenicity	Classification not possible	–	–	–	Classification not possible due to lack of data and reports
7	Toxic to reproduction	Classification not possible	–	–	–	It cannot be classified due to insufficient data, although it was described that it does not participate in testicular injury (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	Classified into Category 1 (blood). Based on the description that its exposure (including dermal exposure) induces methemoglobinemia accompanied, and headache, cyanosis, exhaustion, distraction, palpitation, nausea, vomiting, coma, etc. (ACGIH and (2001), PATTY (5th, 2001), HSDB (2005), SITTIG (47th, 2002)). And iset nto Category 3 (respiratory irritant) based on the description that it stimulates an airway. (ICSC (J) (2002)).
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	Based on the statement that liver disorders, anemia, and methemoglobinemia are occured 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 occure visual disorder (ACGIH (2001), ICSC (J), (2001)), and that paresthesia on hand and foot by the obstacle of a peripheral nerve are occured (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 1	Environment	Warning	Very toxic to aquatic life	It was classified into Category 1 from 96-hour LC50=600microg/L of fishes (Fathead minnows) (AQUIRE, 2003).
11	Hazardous to the aquatic environment (chronic)	Category 1	Environment	Warning	Very toxic to aquatic life with long lasting effects	Classified into Category 1, since acute toxicity was Category 1, not rapidly degrading (BOD: 0% (HSDB, 2004)), though supposed less bioaccumulative (log Kow=1.69(PHYSPROP Database, 2005)).