

## GHS Classification

**ID402**

**1,4-Dichloro-2-nitrobenzene**

**CAS 89-61-2**

Date Classified: May 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	Classification not possible	—	—	—	Classification not possible due to lack of data on the kick-off temperature and decomposition energy (though the substance contains nitro groups, with its oxygen budget calculated at -96).
2 Flammable gases	Not applicable	—	—	—	Classified as "solid" according to GHS definition
3 Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable	—	—	—	Classified as "solid" according to GHS definition
5 Gases under pressure	Not applicable	—	—	—	Classified as "solid" according to GHS definition
6 Flammable liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
7 Flammable solids	Classification not possible	—	—	—	No data available
8 Self-reactive substances and mixtures	Classification not possible	—	—	—	Classification not possible due to lack of data, though containing nitro groups.
9 Pyrophoric liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
10 Pyrophoric solids	Classification not possible	—	—	—	No data available
11 Self-heating substances and mixtures	Classification not possible	—	—	—	Test methods applicable to liquid substances are not available (melting point 56degC Lide (84th, 2003), test temperature: 140degC)
12 Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	—	—	—	Containing no metals or metalloids (B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At)
13 Oxidizing liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
14 Oxidizing solids	Classification not possible	—	—	—	Classification not possible due to lack of data, though being organic compounds containing oxygen bound to carbon and hydrogen.
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 4	Exclamation mark	Warning	Harmful if swallowed	Based on the rat LD50 (oral route) value of 1,000mg/kg representing the lower of the two testing data, 1,000mg/kg and 2,503mg/kg (CERI Hazard Data 99-1 (2000)).
1 Acute toxicity (dermal)	Classification not possible	—	—	—	Insufficient data available
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "solid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
2 Skin corrosion / irritation	Category 3	—	Warning	Causes mild skin irritation	Based on the description in the report on the rabbit skin irritation tests (CERI Hazard Data 99-1 (2000)): "The substance causes slight irritation of the skin," though the results of 4-hour application are not available.
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Based on the description in the report on the rabbit eye irritation tests (CERI Hazard Data 99-1 (2000)): "The substance causes moderate irritation of the eye."
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Category 1	(Respiratory sensitization) - (Skin sensitization) Exclamation mark	(Respiratory sensitization) - (Skin sensitization) Warning	(Respiratory sensitization) - (Skin sensitization) May cause allergic skin reaction	Respiratory sensitization: No data available Skin sensitization: Based on the description in CERI Hazard Data 99-1 (2000): "No sensitization was observed in test animals while there are reports on human cases where positive responses were observed among workers occupationally exposed to 1,4-dichloro-2-nitrobenzene in manufacturing plants. The substance is thus considered a sensitizing skin irritant.
5 Germ cell mutagenicity	Classification not possible	—	—	—	No data on mutagenicity/genotoxicity in vivo tests are available while there are positive data on in vitro assays for chromosome aberration and reverse mutation (Report by the Ministry of Health, Labour and Welfare (1996), SIDS (2005) and CERI Hazard Data 99-1(2000)). However, classification is not possible as the positive results obtained are not conclusive.
6 Carcinogenicity	Classification not possible	—	—	—	No data available
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the evidence of adverse effects on testes (azoospermia) at doses inducing maternal toxicity with lactation defect, described in SIDS (2005), MOE Risk Assessment vol.3 (2004) and CERI Hazard Data 99-1 (2000).
8 Specific target organs/systemic toxicity following single exposure	Category 1 (blood system) Category 3 (narcotic effects)	Health hazard and Exclamation mark	Danger Warning	Causes damage to organs (blood system) (Narcotic effects) May cause drowsiness or dizziness	Based on the evidence from animal studies including "formation of methemoglobin and mild cyanosis," "loss of balance, prone position, decreased locomotor activity" (CERI Hazard Data 99-1 (2000)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (blood system) Category 2 (nervous system, liver, testes)	Health hazard	Danger Warning	Causes damage to organs through prolonged or repeated exposure (blood system) May cause damage to organs through prolonged or repeated exposure (nervous system, liver, testes)	Based on the evidence from animal studies including "decreased locomotor activity, hind limb weakness, staggering gait, prone or lateral (or side, lying) position, bradypnea, wryneck" (Report by the Ministry of Health, Labour and Welfare (1996)), "increased liver weight, bilirubinemia, hepatocyte hypertrophy, adverse effects on the testes including necrosis of the seminiferous epithelia, azoospermia, impaired spermatogenic ability" (SIDS (2005)), "decreases in RBC count/hemoglobin concentration, extramedullary hematopoiesis of the spleen, hyperemia, deposit of hemosiderin" (CERI Hazard Data 99-1 (2000)). The effects on nervous system, liver, testes were observed at dosing levels within the guidance value ranges for Category 2, while the effects on the blood system for Category 1.
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 hours LC50=0.118mg/L of the fish (Carp) (CERI/NITE Hazard Assessment Report (preliminary version), 2006).
11 Hazardous to the aquatic environment (chronic)	Category 1	Environment	Warning	Very toxic to aquatic life with long lasting effects	Although acute toxicity is Category 1 and bio-accumulation is low (BCF=103(Existing Chemical Safety Inspections Data, )), since there was no rapidly degrading (the decomposition by BOD: 4%(Existing Chemical Safety Inspections Data)), it was classified into Category 1.