

## GHS Classification

**ID833**

**Disulfiram**

**CAS 97-77-8**

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 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	Classification not possible	-	-	-	No data available by regulated examination methods, though "Flammable" (ICSC (J) (2002))
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	Classification not possible	-	-	-	No data available
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 applicable	-	-	-	Containing no oxygen, chlorine and fluorine.
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 5	-	Warning	May be harmful if swallowed	Calculated based on Rat LD50 values: 8600mg/kg (ACGIH 7th, 2001, NTP TR 166, 1979), 1300mg/kg, 2500mg/kg, and 3100mg/kg (DFGOT vol.5, 1993). Since the calculated value was 2244mg/kg, it was set as Category 5.
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on rabbit LD50 value: >2000mg/kg (IUCLID, 2000, HSDB, 2006), it was set as the outside of Category.
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	Not classified	-	-	-	In the test applied to the skin of the rabbit of DFGOT (vol.5, 1993), slight erythema was admitted, but it disappeared 6 hours afterward. Acceptance criteria of irritation was not suited and it was carried out the outside of Category.
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Based on the description that mild irritation was acknowledged in the test applied to the eye of the rabbit (IUCLID (2000)), it was set as Category 2B.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	Respiratory organ: No data. Skin: Although it is classified to be Sh (MAK/BAT, 2004) according to DFG, there was no evidence which suggests that skin contacts induce hypersensitivity in humans, therefore it was presupposed that we cannot classify it because of the insufficiency of the data.
5 Germ cell mutagenicity	Classification not possible	-	-	-	Since there is a negative result with the micronucleus test, an in vivo mutagenicity test with somatic cell on mouse marrow cells (IUCLID, 2000), it is considered to be out of Category. However, there is only data of in vitro examination with the source of Priority 1, and it could not negate toxicity clearly. So it was presupposed that it cannot be classified due to data insufficiency.
6 Carcinogenicity	Not classified	-	-	-	It was classified into a group 3 (IARC Suppl.7 1987) in IARC and was classified into A4 (ACGIH 7th, 2001) in ACGIH. So it was considered as the outside of Category.

7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	There is a description that malformations (two cases) or abortion (one case) was observed in five pregnant women exposed in early pregnancy (DFGOT (vol. 5, 1993)). In addition, there is a description that functional disorders of female genitalia are caused by occupational exposure. However, since it was not a sufficient evidence to be considered as Category 1A, it was classified into Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system)	Health hazard	Danger	Cause damage to organs (nervous system)	In DFGOT (vol.5, 1993), from description that as for the children ingested large amount orally was acknowledged pupillary dilation, uneasy and depression, and headaches and locomotor ataxias were acknowledged to adults. It judged that a nervous systems was affected and was set as Category 1 (nervous system).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system, liver, thyroid gland, endocrine system)	Health hazard	Danger	Causes damage to organs (nervous system, liver, thyroid gland, endocrine system) through prolonged or repeated exposure	Based on descriptions that a polyneuropathy and etc. are acknowledged as side effects at the time of taking in as a drug of ACGIH (7th, 2001), that In the example of long-term oral ingestion of DFGOT (vol.5, 1993), mood disorders, liver damage and change of the hormone concentration in blood etc. were acknowledged, and that hyperplasia of the thyroid gland accompanied by iodine uptake decreases was observed with the given dose of the guidance value range of Category 1 in the oral study using the rat of DFGOT (vol.5, 1993), it was classified into Category 1 (nervous systems, liver, the thyroid gland, endocrine 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 48-hour LC50=120microg/L of Crustacea (Daphnia magna) (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, and supposed not rapidly degrading (estimated by the decomposition rate of tetraethylthiuram disulfide by BOD: 2.8% (Existing Chemicals Safety Check Data)), though supposed less bioaccumulative (log Kow=3.88 (PHYSPROP Database, 2005)).