

## GHS Classification

**ID145**

**CAS 102-81-8**

**Physical Hazards**

**2-(Di-n-butylamino)ethanol**

Date Classified: Jun. 20, 2006 (Environmental Hazards: Mar. 31, 2006)

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

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Explosives	Not applicable	—	—	—	Containing no chemical groups with explosive properties
2 Flammable gases	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
3 Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
5 Gases under pressure	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
6 Flammable liquids	Category 4	—	Warning	Combustible liquid	The flash point is 90degC (c.c.) (ICSC (2004))
7 Flammable solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not classified	—	—	—	Not pyrophoric when in contact with air at ordinary temperatures: the auto-ignition temperature is 165degC (ICSC, 2004))
10 Pyrophoric solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
11 Self-heating substances and mixtures	Classification not possible	—	—	—	Test methods applicable to liquid substances are not available
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	—	—	—	Organic compounds containing oxygen (but not fluorine and chlorine), with the oxygen bound to carbon and hydrogen (but not to other elements)
14 Oxidizing solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
15 Organic peroxides	Not applicable	—	—	—	Organic compounds containing no "-O-O-" structure
16 Corrosive to metals	Not classified	—	—	—	The substance acts on many metals to form hydrogen, according to ICSC (2004). Classified into Division 6.1 (UN#2873 Dibutylaminoethanol) (UN Recommendations on the Transport of Dangerous Goods)

**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 1,070mg/kg representing the lower of the two testing data, 1,780mg/kg and 1,070mg/kg (ACGIH (7th, 2001)).
1 Acute toxicity (dermal)	Category 4	Exclamation mark	Warning	Harmful in contact with skin	Based on the rabbit LD50 (dermal route) value of 1,440mg/kg (ACGIH (7th, 2001)).
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "liquid" 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
2 Skin corrosion / irritation	Category 1A-1C	Corrosion	Danger	Causes severe skin burns and eye damage	Based on the description in the report on rabbit skin irritation tests (ACGIH (7th, 2001)): "DBAE (dibutylaminoethanol) produced necrosis within 24 hours when applied to the skin of rabbits." The substance is thus considered to cause irreversible damage to the skin. Although classified into Category 1A-1C, it should be placed in Category 2A from the viewpoint of safety, if further subclassification is needed.
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	Based on the description in the report on eye irritation tests (ACGIH (7th, 2001)): "DBAE caused corneal necrosis." The substance is thus considered to cause irreversible damage to the eye and classified into Category 1.
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) -	Respiratory sensitization: No data available Skin sensitization: No data available
5 Germ cell mutagenicity	Classification not possible	—	—	—	Based on the absence of data on multi-generation mutagenicity tests, germ/somatic cell mutagenicity tests in vivo and germ/somatic cell genotoxicity tests in vivo, and no positive data on mutagenicity tests in vitro (several indices), described in CERH Hazard Data 2001-3 (2002), NTP DB (Access on February 2006), ACGIH (7th, 2001).
6 Carcinogenicity	Classification not possible	—	—	—	No data available
7 Toxic to reproduction	Classification not possible	—	—	—	No data available
8 Specific target organs/systemic toxicity following single exposure	Category 2 (nervous system) Category 3 (respiratory tract irritation)	Health hazard and Exclamation mark	Warning	May cause damage to organs (nervous system) (Respiratory tract irritation) May cause respiratory irritation	Based on the human evidence: "inhalation of fume causes irritation of the respiratory tract; adversely affects central nervous system; may lead to spasm and respiratory failure; cholinesterase inhibitor" (ICSC (J) (2002)).

9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (nervous system)	Health hazard	Warning	Causes damage to organs through prolonged or repeated exposure (nervous system)	Based on the evidence from animal studies including "cage-licking and chewing, increased locomotor activity (ambulatory movement in both sexes, rearing in males)" (Report by the Ministry of Health, Labour and Welfare (2005)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for 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 hours ErC50=21mg/L of the algae (Selenastrum) (MOE Eco-Toxicity Tests of Chemicals, 2003).
11 Hazardous to the aquatic environment (chronic)	Category 3	—	—	Harmful to aquatic life with long lasting effects	Although acute toxicity was Category 3 and the bio-accumulation potential was low (BCF<39(Existing Chemical Safety Inspections Data)), since there was no rapidly degrading (the decomposition by BOD: 1%(Existing Chemical Safety Inspections Data)), it was classified into Category 3.