

## GHS Classification

**ID759**

**Diethylamine**

**CAS 109-89-7**

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	-	-	-	Liquid (GHS definition)
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Liquid (GHS definition)
5 Gases under pressure	Not applicable	-	-	-	Liquid (GHS definition)
6 Flammable liquids	Category 2	Flame	Danger	Highly flammable liquid and vapour	Flash point: <-26degC. Boiling point: 55.5degC
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
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 classified	-	-	-	Not ignite spontaneously on coming into contact with air at normal temperatures
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (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	-	-	-	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	-	-	-	Organic compounds containing no oxygen, fluorine and chlorine.
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Organic compounds containing no -O-O- structure
16 Corrosive to metals	Classification not possible	-	-	-	No data available

## Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 3	Skull and crossbones	Danger	Toxic if swallowed	Category 3 based on SPECIES: Rat; VALUE: 248mg/kg; REFERENCE SOURCE: ACGIH (2001), IUCLID (2000)
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Since the calculation value using two or more data of the rabbit dermal acute toxicity values (IUCLID (2000)) is 582mg/kg, it is in Category 3.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 4	Exclamation mark	Warning	Harmful if inhaled	Since the rat 4-hour inhalation acute toxicity value was 4040ppm (PATTY (2001)) and 5780ppm (IUCLID (2000)), adopting the lower data and classified it as Category 4.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 1	Corrosion	Danger	Causes severe skin burns and eye damage	There are reports of corrosivity for many studies on rabbits. (IUCLID(2000))
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	In many animals studies report with irritant (IUCLID (2000)), but there is also a description with damage to a serious eye (ACGIH (2001)). Moreover, since corrosion of the skin / irritation is categorized into Category 1, critical damage / irritation over an eye are set as category 1.
4 Respiratory/skin sensitization	Classification not possible; Skin sensitization: Classification not possible	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	About respiratory sensitization, there is no data and it cannot be classified. Although there is a datum about skin sensitization describing that a Mouse ear swelling test did not identify it(IUCLID (2000)), this is not enough to put it outside of Category.
5 Germ cell mutagenicity	Not classified	-	-	-	In the in vivo examinations, such as the dominant lethality examination using the rat, the micronucleus assay, and the sex-linked recessive lethals examination using the drosophilas, the positive result was not obtained for diethylamine itself (ACGIH (2001)). Moreover, many negative results for in vitro examination (Ames test) were obtained (ACGIH (2001), IUCLID (2000)). Therefore we judged it as Out Of Category. However, diethylamine showed mutagenicity when administered simultaneously with nitrous acid (DFGOT vol.1 (1991)).
6 Carcinogenicity	Not classified	-	-	-	In the test using a guinea pigs, carcinogenic was not acknowledged, and it has been classified into A4 (ACGIH (2001)). So it carried out the outside of category. However, it is reported that diethylamine changes to nitrosamine in the internal (ACGIH (2001)).

7	Toxic to reproduction	Classification not possible	-	-	-	Classification not possible due to lack of data
8	Specific target organs/systemic toxicity following single exposure	Category 2 (liver, respiratory)	Health hazard	Warning	May cause damage to organs (liver, respiratory)	Starting corrosive to respiratory tract and pulmonary edemas in human is pointed out (ICSC (J) (1997)). Moreover, in short-term exposure in a rabbit, the influence of fatty liver degeneration, pulmonary edemas, emphysema, etc. is regarded (RTECS (2005)). So it is classified into Category 2 (target organ: liver, respiratory-organs system).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (kidneys, respiratory organs)	Health hazard	Danger	Causes damage to organs (kidneys, respiratory organs) through prolonged or repeated	Effect was observed in lungs and the kidney in the inhalation study of 100 ppm for six weeks to a rabbit (ACGIH (2001)). This concentration is within the limits of the guidance value of Category 1 in 90-day conversion. Effect was observed at lesion of the respiratory system epithelium etc. in the inhalation study of 250 ppm for 24 weeks to the rat (ACGIH (2001)). This density is within the limits of the guidance value of Category 2. According to this point, Category 1, and target organ are the kidney and the respiratory systems.
10	Aspiration hazard	Classification not possible	-	-	-	We have a report of the case of pneumonia by the exposure in the accident (ACGIH (2001)), however, we could not classify it because not obvious of occurring by aspiration.

### 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=27mg/L of fishes ( <i>Oryzias latipes</i> ) (MOE eco-toxicity tests of chemicals, 1999).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since rapidly degrading (BOD: 89% (existing chemical safety inspections data)), and less bio-accumulative (log Kow=0.58 (PHYSPROP Database, 2005)).