

GHS Classification

ID231

Benzene, diethenyl-

CAS 1321-74-0

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 4	-	Warning	Combustible liquid	Flash point: 76degC(o.c.)
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Type G	-	-	-	Although the grouping relevant to autoreactive was included in the molecule but includes a polymerization inhibitors are does not polymerize in room temperatures. So it was taken as Type G.
9 Pyrophoric liquids	Not classified	-	-	-	The ignition points is 500 degC and does not ignite in room temperatures.
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Test methods are not available.
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	-	-	-	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 on corrosion to metals

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	SPECIES: Rat ENDPOINT: LD50 VALUE: 2155 mg/kg, 4100 mg/kg REFERENCE SOURCE: ACGIH (2001)
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	-	-	-	Death is not observed with 645ppm in 7 hour toxicity-by-inhalation test on rats. But there is no level of LC50, it cannot be classified.
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	Based on the information that it causes mild irritation on humans (ACGIH (2001)) and that it caused erythema, scaling, dropsy, and moderate necrosis on rabbits (ACGIH (2001)), it was classified as Category 1.
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Since the inflammation of the conjunctiva remained even if it left on the 8th by moderate pain by applying-eyewash medication of the rabbit (ACGIH (2001)), it was set as Category 2A.
4 Respiratory/skin sensitization	Classification not possible	-	-	-	No data available
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Although there are positive results from in vivo micronucleus tests (MIN), cytogenetic assays (GAs) and sister chromatid exchange tests (SCEs), these tests are not germ cell tests. So the substance was classified as Category 2
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	It is observed mammary gland hyperplasia and bad nesting and newborns are all died in 7/9 cases in the 1000mg/kg dosage group in the oral administration of female and male rat. There was the decrease of the number of corpus luteum and the number of implantation trace, and implantation rate, and there was the decrease of the total number of baby, of the number of new born of no lactation, of the birth rate and of the number of survival baby of 4 nursing day and of the survival rate, and there was the tendency to be low of delivery rate and the neonatal reproductive rate. However, there is no effect to parent animals and new born in the dose 1000mg/kg or less (Health, Labor and Welfare Ministry reports (2006)). Since this effect is checked as secondary toxicity of parent animals because the toxicity is not occurred in the next generation in the dose that parent animals do not have toxicity, it is classified into the Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 3 (narcotic effects, respiratory tract irritation)	Exclamation mark	Warning	May cause respiratory irritation or may cause drowsiness and dizziness (narcotic effects, respiratory tract irritation)	In the inhalation atmospheric exposure test (7-hour single times) in five rats, nasal secretions was occurred at 2340ppm exposure. In 3312ppm, ataxia, tachypnoea, eye irritation, and rhinitis were developed during exposure, and the symptoms of decreased weight and lethargic developed for more than 14 days. In 4835ppm exposure, three of five animals dead within 24 hours, and after exposure bloody urine and decreased weight were observed in the survived individual (ACGIH (2001)). Thereby, it was classified into Category 3 (anesthetic action). Moreover, the respiratory tract irritation is reported as acute symptoms by the human occupation exposures (ACGIH (2001)). So it was classified into Category 3 (respiratory irritant).
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (liver, kidneys, thymus)	Health hazard	Warning	May cause damage to organs (liver, kidneys, thymus) through prolonged or repeated	By the rat inhalation exposure, in the range of the value of Category 2, "Reduction of thymus size" is seen, moreover, "centrilobular hepatocyte growth, nephrosis, and kidney tubular dilatation" are seen in the range of the value of Category 2 by inhalation exposure of a mouse (ACGIH (2001)).
10	Aspiration hazard	Classification not possible	-	-	-	No data available on chemical pneumonia

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Category 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 72-hour ErC50=1.8mg/L of algae (Selenastrum) (MOE eco-toxicity tests of chemicals, 1997).
11 Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Classified into Category 2, since acute toxicity was Category 2 and not rapidly degrading (BOD: 0% (existing chemical safety inspections data)), though less bio-accumulative (BCF=433(m-), 402(p-) (existing chemical safety inspections database)).