

GHS Classification

ID478

CAS 95-31-8

Physical Hazards

N-(tert-Butyl)-2-benzothiazolesulfenamide

Date Classified: Aug. 22, 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 "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	Not applicable	—	—	—	Containing no chemical groups with explosive or self-reactive properties
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: 108degC (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	Not applicable	—	—	—	Organic compounds containing no oxygen, fluorine and chlorine
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)	Not classified	—	—	—	Because the rat LD50 (oral route) value of >2,000mg/kg representing the lower of the two testing data, >2,000mg/kg (SIDS (2004)) and >6,310mg/kg (CERI Hazard Data 2001-18 (2002)), is in accordance with OECD TG423, and no evidence of deaths or toxic effects was observed.
1 Acute toxicity (dermal)	Not classified	—	—	—	Based on the rabbit LD50 (dermal route) value of >7,940mg/kg (SIDS (2004)).
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	Not classified	—	—	—	Based on the description in the report on rabbit skin irritation tests evaluated according to the Draize scheme (SIDS (2004)): "It can be concluded that the substance is essentially non irritating to the human skin, though only slight irritation was observed." Also based on the description in CERI-NITE Hazard Assessment No.22 (2005): "There is no evidence of skin irritation."
3 Serious eye damage / eye irritation	Not classified	—	—	—	Based on the description in the report on rabbit eye irritation tests (SIDS (2004)): "It can be concluded that the substance is essentially non irritating to the eye, though mild irritation was observed."
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 an allergic skin reaction	Respiratory sensitization: No data available Skin sensitization: Based on three epidemiological case reports that provide the evidence of skin sensitization in humans (CERI-NITE Hazard Assessment No.22 (2005)). Also based on the description in the report on guinea pig skin sensitization tests performed according to Buehler Method (SIDS (2005)): "Skin sensitization: positive."
5 Germ cell mutagenicity	Not classified	—	—	—	Based on the absence of data on multi-generation mutagenicity tests and germ cell mutagenicity tests in vivo, and negative data on somatic cell mutagenicity tests in vivo (micronucleus tests), described in NITE Initial Risk Assessment No.22 (2005), CERI Hazard Data 2001-18 (1997), CERI-NITE Hazard Assessment No.22 (2005) and SIDS (2004).
6 Carcinogenicity	Classification not possible	—	—	—	No data available
7 Toxic to reproduction	Not classified	—	—	—	Based on no evidence of adverse effects on reproductive organs of parental animals and on the offspring in repeated dose toxicity and reproductive toxicity combined studies, described in NITE Initial Risk Assessment No.22 (2005), CERI-NITE Hazard Assessment No.22 (2005) and SIDS (2004).
8 Specific target organs/systemic toxicity following single exposure	Classification not possible	—	—	—	Insufficient data available
9 Specific target organs/systemic toxicity following repeated exposure	Category 2 (kidneys, blood system, liver)	Health hazard	Warning	May cause damage to organs through prolonged or repeated exposure (kidneys, blood system, liver)	Based on the evidence from animal studies including "vacuolar degeneration of the proximal renal tubules and hemolysis" (Report by the Ministry of Health, Labour and Welfare (1997)), "localized or multiple focal necrosis in the liver" (NITE Initial Risk Assessment No.22 (2005)), "histopathological changes in the liver were observed in the highest dose group" (SIDS (2003)). 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
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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 72 hours ErC50=0.071mg/L of the algae (Selenastrum) (SIDS, 2004).
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<8 (2-mercaptobenzothiazole), BCF=51(di(benzothiazol-2-yl)persulfide), BCF=16 (tert-butylamine) and BCF=7.5 (benzothiazole)(Existing Chemical Safety Inspections Data,)), since there was no rapidly degrading (the decomposition by BOD: 0%(Existing Chemical Safety Inspections Data)), it was classified into Category 1.