

GHS Classification

ID198

Borax

CAS 1303-96-4

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	—	—	—	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	Not classified	—	—	—	Non-flammable (ICSC, 1999)
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	Not classified	—	—	—	Non-combustible (ICSC, 1999)
11 Self-heating substances and mixtures	Not classified	—	—	—	Non-combustible (ICSC, 1999)
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	—	—	—	Stable to water (water solubility: 5.1g/100mL (20degC), ICSC (1999))
13 Oxidizing liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
14 Oxidizing solids	Classification not possible	—	—	—	Classification not possible due to lack of data, though inorganic compounds containing oxygen
15 Organic peroxides	Not applicable	—	—	—	Not organic compounds
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	Based on the LD50 value of 4,450mg/kg calculated from the testing data of rat LD50 (oral route) of 3,493mg/kg, 4,500mg/kg, 4,980mg/kg, 5,660mg/kg, 6,080mg/kg (EHC 204 (1998)) and 6,000mg/kg (ECETOC TR63 (1995)).
1 Acute toxicity (dermal)	Not classified	—	—	—	Based on the rabbit LD50 (dermal route) value of >10,000mg/kg (HSDB (2005)).
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	—	—	—	Insufficient data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Based on the description in the report on animal skin irritation tests (PATTY (4th, 2000) and ECETOC TR63 (1995)): "mild to moderate skin irritation" (though the results are not those of 4-hour application). Also based on the description of the human health effects (ACGIH (7th, 2001)): "dermatitis was observed following exposure to borax." Although classified as Category 2-3, the substance should be placed in Category 2 from the
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	Based on the description in the report on eye irritation tests in rabbits and rats (ECETOC TR63 (1995) and ATSDR (1992)): "The substance induced clouding of the conjunctiva with hyperplasia and blister formation. Corneal irritation was noted, with the effects healing within days 8-21," "eye inflammation." Also based on the human evidence of eye irritation of unknown degree (ECETOC TR63 (1995)). Although classified into Category 2A-2B, the substance should be placed in Category 2A from the viewpoint of safety if further subclassification is needed.
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 EHC 204 (1998).
6 Carcinogenicity	Not classified	—	—	—	Due to the fact that the substance is classified as Category A4 (borates compounds, inorganic [1330-43-4; 1303-96-4; 10043-35-3; 12179-04-3]) by ACGIH (2005).
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the evidence of adverse effects on sperm production, described in ATSDR (1992) (no data presented on general toxicity).
8 Specific target organs/systemic toxicity following single exposure	Category 1 (kidneys, nervous system, respiratory organs)	Health hazard	Danger	Causes damage to organs (kidneys, nervous system, respiratory organs)	Based on the human evidence including "kidney damage, suppression of the central nervous system and vascular collapse" (ACGIH (7th, 2001)), "respiratory/pulmonary diseases, abnormalities detected by chest X ray, respiratory irritation" (ACGIH (7th, 2001)). * As "inorganic borate exists as boric acid in a diluted aqueous solution of physiological pH," (PATTY (4th, 2000)), refer to "Sodium Tetraborate (ID: 0197)" and "Boric Acid (ID: 0491)."

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system, kidneys, respiratory organs) Category 2 (testes)	Health hazard	Danger Warning	Causes damage to organs through prolonged or repeated exposure (nervous system, kidneys, respiratory organs) May cause damage to organs through prolonged or repeated exposure	Based on the human evidence including "general and topical crossed motor seizure, irritability, clouding/swelling/granular degeneration of renal tubules" (EHC 204 (1998)), "respiratory/pulmonary diseases, abnormalities detected by chest X ray and chronic bronchitis" (ACGIH (7th, 2001)), and the evidence from animal studies including "atrophy of the testes" (ATSDR (1992)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 2. * As "inorganic borate exists as boric acid in a diluted aqueous solution of physiological pH," (PATTY (4th, 2000)), refer to "Sodium Tetraborate (ID: 0197)" and "Boric Acid (ID: 0491)."
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)	Not classified	-	-	-	It was classified into Not classified from 96 hours LC50=14.2mg boron/L(Sodium Tetraborate Decahydrate Equivalent: 501.0mg/L) of the fish (Zebrafish) (EHC204, 1998).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since it was not water-insolubility (the water-solubility =5930mg/L (HSDB, 2004)), and acute toxicity was low, it was classified into Not classified.