

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Board Defense®
CHEMICAL NAME/SYNONYM: DiSodium Octaborate Tetrahydrate
MANUFACTURER: InCide® Technologies, Inc.
ADDRESS: 50 N 41st Ave
Phoenix, AZ 85009
EMERGENCY PHONE: (602) 233-0756
CHEMTREC PHONE: (800) 424-9300
RECOMMENDED USE: Insecticide

SECTION 2: HAZARDS IDENTIFICATION

HAZARD CLASSIFICATION: Reproductive Toxicity Category 2

HAZARD PICTOGRAM:



SIGNAL WORD: Warning

HAZARD STATEMENTS:

H361: Suspected of damaging fertility or the unborn child.

PRECAUTIONARY STATEMENTS:

P202: Do not handle until all safety precautions have been read and understood.

P281: Use personal protective equipment as required.

P308+P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container in accordance with local regulation.

OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION: None.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	% WT	SARA 313 REPORTABLE
Disodium Octaborate Tetrahydrate	12280-03-4	>99.0%	

SECTION 4: FIRST AID MEASURES

EYES: Use eye wash fountain or fresh water to cleanse eye. If irritation persists for more than 30 minutes, seek medical attention.

SKIN: No treatment necessary because non-irritating.

INGESTION: Swallowing small quantities (one teaspoon) will cause no harm to healthy adults. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention.

INHALATION: No specific treatment is necessary since disodium octaborate tetrahydrate is not likely to be hazardous by inhalation. Prolonged exposure to dust levels in excess of regulatory limits should always be avoided.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Observation only is required for adult ingestion of a few grams of Board Defense®. For ingestion in excess of larger amounts, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patients only. Hemodialysis should be reserved for massive acute ingestion or patients with renal failure. Boron analyses of urine or blood are only useful for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment.

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SECTION 5: FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Use extinguishing media that are appropriate to local circumstances and the surrounding environment.

SPECIAL FIRE FIGHTING PROCEDURES: Not applicable. Disodium octaborate tetrahydrate is itself a flame retardant.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None. Disodium octaborate tetrahydrate is not flammable, combustible or explosive.

SECTION 5 NOTES:

SECTION 6: ACCIDENTAL RELEASE MEASURES

GENERAL: Disodium octaborate tetrahydrate is a water-soluble white powder that may cause damage to trees or vegetation by root absorption. Avoid spillage into water and cover drains.

LAND SPILL: Vacuum, shovel or sweep up and place in containers for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during clean up and disposal. No personal protective equipment is needed to clean up land spills.

WATER SPILL: Where possible, remove any intact containers from the water. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns the boron value to its normal environmental background level or meets local water quality standards. Disodium octaborate tetrahydrate will cause localized contamination of surrounding waters depending on the quantity dissolved in these waters. At high concentrations some damage to local vegetation, fish and other aquatic life may be expected. Disodium octaborate tetrahydrate is a non-hazardous waste when spilled or disposed of, as defined in the Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261).

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: Good housekeeping procedures should be followed to minimize dust generation and accumulation. Avoid spills. Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES: No special handling precautions are required, but dry, indoor storage is recommended. To maintain package integrity and to minimize caking, bags should be handled on a "first-in first-out" basis.

Storage temperature:	Ambient
Storage pressure:	Atmospheric
Special sensitivity:	Moisture (Caking)

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA PEL-TWA: 15 mg/m³ total dust and 5 mg/m³ respirable dust

ACGIH TLV-TWA-OEL: 10 mg/m³ inhalable particles

Cal OSHA PEL-TWA: 10 mg/m³ total dust

ENGINEERING CONTROLS AND VENTILATION: Use local exhaust ventilation to keep airborne concentrations of sodium polyborate dust below permissible exposure limits.

RESPIRATORY PROTECTION: Where airborne concentrations are expected to exceed exposure limits, NIOSH/MSHA certified respirators must be used.

EYE PROTECTION: Eye protection according to ANSI Z.87.1 or other national standards may be warranted if environment is excessively dusty.

SKIN PROTECTION: Standard work gloves (cotton, canvas or leather) may be warranted if environment is excessively dusty.

SECTION 8 NOTES: PEL: Permissible Exposure Limit, TLV: Threshold Limit Value, TWA: Time Weighted Average,

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: White, crystalline powder

ODOR: Odorless

ODOR THRESHOLD: Not applicable

pH AT 25°C: 8.3 (3.0% solution); 7.6 (10.0% solution)

MELTING POINT/FREEZING POINT: 815°C

BOILING POINT AND BOILING RANGE: Not applicable: melting point 815°C

FLASH POINT: Not applicable: inorganic substance

EVAPORATION RATE: not applicable: non-volatile

FLAMMABILITY: Non-flammable; used as a flame retardant

UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS: Not applicable; non-flammable

VAPOR PRESSURE: Not applicable: melting point 815°C

VAPOR DENSITY: Not applicable: melting point 815°C

RELATIVE DENSITY: 1.87 @ 22°C

SOLUBILITY IN WATER: 223.65 g/L @ 20°C

PARTITION COEFFICIENT; n-octanol/water: Not applicable: inorganic substance

AUTO-IGNITION TEMPERATURE: Not applicable: not self-heating

DECOMPOSITION TEMPERATURE: Not applicable melting point 815°C

VISCOSITY: Not applicable: solid substance

EXPLOSIVE PROPERTIES: Not explosive: does not contain chemical groups associated with explosive properties

OXIDIZING PROPERTIES: Not oxidizing: does not contain chemical groups associated with oxidizing properties

MOLECULAR WEIGHT: 412.52

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY: None known.

STABILITY: Under normal ambient temperatures (-40°C to +40°C), disodium octaborate tetrahydrate is stable.

POSSIBILITY OF HAZARDOUS REACTIONS: Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard.

CONDITIONS TO AVOID: Avoid contact with strong reducing agents by storing according to good industrial practice.

INCOMPATIBLE MATERIALS: Strong reducing agents.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: None.

SECTION 11: TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE: Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because product is poorly absorbed through intact skin. Board Defense® is not intended for ingestion.

SYMPTOMS RELATED TO THE PHYSICAL, AND CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS: Board Defense is *not* intended for ingestion. Small amounts (e.g. a teaspoonful) swallowed accidentally are not likely to cause effects. Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.

DELAYED AND IMMEDIATE EFFECTS AS WELL AS CHRONIC EFFECTS FROM SHORT AND LONG-TERM EXPOSURE: Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid and sodium borate dust. Human epidemiological studies indicate no effect on fertility in occupational populations with chronic exposures to borate dust and indicate no effect to a general population with high exposures to borates in the environment.

ACUTE TOXICITY:

Method: Acute Oral Toxicity Study – OECD Guideline 401

Species: Rat

Dose: 2000 – 5000 mg/kg body weight

Routes of Exposure: Oral

Results: Low acute oral toxicity. The oral LD₅₀ value in male rats is 3,450 mg/kg bw, and in female rats is 4080 mg/kg bw.

Classification: Acute Toxicity (Oral) Category 5 (Hazard statement: H303: May be harmful if swallowed)

Method: Acute Dermal Toxicity Study – U.S. EPA FIFRA Guidelines

Species: Rabbit

Dose: 2,000 mg/kg bw

Routes of Exposure: Dermal

Results: Low acute dermal toxicity; LD₅₀ in rabbits is > 2,000 mg/kg of body weight. Poorly absorbed through intact skin.

Based on the available data, the classification criteria are not met.

Method: Acute Inhalation Toxicity Study – OECD Guideline 403

Species: Rat

Dose: 2.12 mg/L

Routes of Exposure: Inhalation

Results: Low acute inhalation toxicity; LC₅₀ in rats is > 2.0 mg/l (or g/m³). Based on the available data, the classification criteria are not met.

SKIN CORROSION / IRRITATION:

Method: Primary Dermal Irritation Study – U.S. EPA FIFRA Guidelines

Species: New Zealand White Rabbit

Dose: 0.5 g moistened with saline

Routes of Exposure: Dermal

Results: No skin irritation. Mean Primary Irritation Score: 0.1. Based on the available data, the classification criteria are not met.

SERIOUS EYE DAMAGE / IRRITATION:

Method: Eye Irritation Study – similar to OECD Guideline 405

Species: New Zealand White Rabbit

Dose: 0.1 g

Routes of Exposure: Eye

Results: Not irritating, corneal involvement or irritation clearing in 7 days.

Classification: Based on mean scores < 1, and the effects were fully reversible within 7 days, the classification criteria are not met. Many years of occupational exposure indicate no adverse effects on human eye.

RESPIRATORY OR SKIN SENSITISATION:

Method: Buehler Test – OECD Guideline 406

Species: Guinea Pig

Dose: 0.4 g 95 % w/w/boric acid

Routes of Exposure: Dermal

Results: Not a skin sensitiser. No respiratory sensitisation studies have been conducted. There are no data to suggest that boric acid is a respiratory sensitiser. Based on the available data, the classification criteria are not met.

GERM CELL MUTAGENICITY:

Method: Several in vitro mutagenicity studies have been carried out on boric acid including gene mutation in mammalian cells, unscheduled DNA synthesis, chromosomal aberration and sister chromatid exchange in mammalian cells.

Species: L5178Y mouse lymphoma, V79 Chinese hamster cells, C3H/10T1/2 cells, hepatocytes, Chinese hamster ovary (CHO cells).

Dose: 1.0 - 10.0 mg/ml (1000 -10000 ppm) boric acid

Routes of Exposure: *in vitro*

Results: Not mutagenic (based on boric acid). Based on the available data, the classification criteria are not met.

CARCINOGENICITY:

Method: OECD 451 equivalent.

Species: B6C3F1 mice

Dose: 446 ; 1150 mg boric acid/kg bw/day

Routes of Exposure: Oral feeding study

Results: No evidence of carcinogenicity. Based on the available data, the classification criteria are not met.

REPRODUCTIVE TOXICITY:

Method: Three-generation feeding study, similar to OECD 416 Two-Generation Study

Species: Rat

Dose: 0; 34 (5.9); 100 (17.5) and 336 (58.5) mg boric acid (mg B)/kg bw/day

Routes of Exposure: Oral feeding study

Results: NOAEL in rats for effects on fertility in males is 100 mg boric acid/kg bw equivalent to 17.5 mg B/kg bw.

Method: Prenatal Developmental Toxicity Study of Boric Acid – OECD Guideline 414

Species: Rat

Dose: 0; 19 (3.3); 36 (6.3); 55 (9.6); 76 (13.3) and 143 (25) mg boric acid (mg B)/kg bw.

Routes of Exposure: Oral feeding study

Results: NOAEL in rats for developmental effects on the foetus including foetal weight loss and minor skeletal variations is 55 mg boric acid/kg bw or 9.6 mg B/kg.

Classification: Reproductive Toxicity Category 2 (Hazard statement: H361: Suspected of damaging fertility or the unborn child.)

Method: Occupational studies of evaluating sensitive sperm parameters in highly exposed borate workers. Epidemiological studies evaluating high environmental exposures to boron and developmental effects in humans have been conducted.

Species: Human

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Dose: A subset of workers was exposed to 125 mg B/day.

Routes of Exposure: Combined oral ingestion and inhalation

Results: No adverse fertility effects in male workers. Epidemiological studies of human developmental effects have shown an absence of effects in exposed borate workers and populations living in areas with high environmental levels of boron.

STOT-SINGLE EXPOSURE:

Method: Standard Test Method for Estimating Sensory Irritancy of Airborne Chemicals – ASTM E981-04 (2004)

Species: Mouse

Dose: 221 - 1096 mg boric acid/m³

Routes of Exposure: Inhalation

Results: The highest concentration of boric acid that was achievable with acceptable control of the aerosol concentration was 1096 mg/m³ with a %RD of 19%. The lowest exposure tested of 221 mg/m³ boric acid resulted in a reduced respiration rate of 9%, graded as no irritation. Based on the available data, the classification criteria are not met.

Method: Sensory irritation in human volunteers

Species: Human

Dose: 2.5, 5, 10 mg boric acid/m³

Routes of Exposure: Inhalation

Results: No irritation from boric acid was observed at exposures up to 10 mg/m³ among male and female human volunteers under controlled laboratory conditions.**STOT-REPEATED EXPOSURE:**

Method: Chronic toxicity study of boric acid, similar to OECD 452

Species: Rat

Dose: 0; 33 (5.9); 100 (17.5); 334 (58.5) mg boric acid (B)/kg bw per day (nominal in diet)

Routes of Exposure: oral; feed

Results: A NOAEL of 17.5 mg B/kg bw/day equivalent to 100 mg boric acid/kg bw/day was determined in a chronic feeding study (2 years) in rats and is based on testes effects. Other effects (kidney, haemopoietic system) are regarded only at even higher dose levels. Based on the available data, the classification criteria are not met.

ASPIRATION HAZARD: Physical form of solid powder indicates no aspiration hazard potential.**SECTION 11 NOTES:** The information in this section is based on boric acid.**SECTION 12: ECOLOGICAL INFORMATION****ECOTOXICITY (AQUATIC AND TERRESTRIAL, WHERE AVAILABLE):**

Note that the data values are expressed as boron equivalents. Studies judged to be unreliable or with insufficient information to evaluate are not included.

FRESHWATER:**Chronic studies**

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric NOEC/EC10)	References
Algal	4	10 mg B/L (<i>Chlorella pyrenoidosa</i>) to 50 mg B/L (<i>Anacystis nidulans</i>)	3, 4
Higher plants	3	4.0 mg B/L (<i>Phragmites australis</i>) to 60 mg B/L (<i>Lemna minor</i>)	5, 6
Invertebrate and protozoan	7	5.7 mg B/L (<i>Daphnia magna</i>) to 32 mg B/L (<i>Chironomus riparius</i>)	7, 8
Fish	6	2.9 mg B/L (<i>Micropterus salmoides</i>) to 17 mg B/L (<i>Carassius auratus</i>)	9
Amphibian	2	29 mg B/L (<i>Rana pipiens</i>) to 41 mg B/L (<i>Bufo fowleri</i>)	9

Results²: Based on the complete data set of 22 species, the HC₅ value of the species sensitivity distribution is 4.05 mg B/L.**Acute studies**

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric EC/LC50)	References
Algal	2	10 mg B/L (<i>Chlorella pyrenoidosa</i>) to 28 mg B/L (<i>Selenastrum capricornutum</i>)	3, 10
Invertebrate and protozoan	9	113 mg B/L (<i>Ceriodaphnia dubia</i>) to 1376 mg B/L (<i>Chironomus decorus</i>)	11, 12

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Fish	7	80 mg B/L (<i>Pimephales promelas</i>) to 627 mg B/L (<i>Onchorhynchus tshawytscha</i>)	11, 13
Amphibian	2	86 mg B/L (<i>Rana pipiens</i>) to 104 mg B/L (<i>Bufo fowleri</i>)	9

Results²: Based on the complete data set from 46 studies with 20 species, the HC₅ value of the species sensitivity distribution is 27.3 mg B/L

Classification: Based on the acute data for freshwater species, this substance is not classified as hazardous to the environment.

MARINE AND ESTUARINE DATA:**Chronic studies**

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric NOEC/EC10)	References
Algal	19	5 mg B/L (<i>Emiliana huxleyi</i>) to >100 mg B/L (<i>Agmenellum quadruplicatum</i> , <i>Anacystis marina</i> , <i>Thalassiosira pseudonana</i>)	4

Results: No data are available for invertebrate or vertebrate species. The results from the freshwater data set are recommended as applicable to marine and estuarine species.

Acute studies

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric EC/LC50)	References
Invertebrate	3	45 mg B/L (<i>Litopenaeus vannamei</i>) to 83 mg B/L (<i>Americamysis bahia</i>)	14, 15
Fish	2	74 mg B/L (<i>Limanda limanda</i>) to 600 mg B/L (<i>Oncorhynchus tshawytscha</i>)	13, 16

No data are available for algal species.

SEDIMENT:

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric EC/LC50)	References
Invertebrate	1	82.4 mg B/kg sediment dw (<i>Chironomus riparius</i>)	17, 18

Results: Although limited, the data suggest that sediment organisms are within range of toxicity of aquatic organisms. In addition, the substance will not partition to the sediment, so a sediment/water partitioning approach is justified.

SEWAGE TREATMENT PLANTS (STP):

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric NOEC/EC10)	References
Activated sludge	NA	>17.5 mg B/L to 100 mg B/L	19
Microbes	3	10 mg B/L (<i>Opercularia bimarginata</i>) to 20 mg B/L (<i>Paramecium caudatum</i>)	20

TERRESTRIAL DATA:**Chronic studies**

Taxonomic Group	Number of Taxa Tested	Range of Endpoint Values (geometric NOEC/EC10)	References
Plant	28	7.2 mg B/kg dw (<i>Zea mays</i>) to 56 mg B/kg dw (<i>Allium cepa</i>)	21, 22
Invertebrates	9	15.4 mg B/kg dw (<i>Folsomia candida</i>) to 87 mg B/kg dw (<i>Caenorhabditis elegans</i>)	23, 24

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Soil micro	3	12 mg B/kg dw (nitrogen mineralization and nitrification test) to 420 mg B/kg dw (soil nitrogen transformation test)	25, 26
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Results²: Based on the complete data set, the HC₅ value of the species sensitivity distribution is 10.8 mg B/kg dw.

PHYTOTOXICITY: Boron is an essential micronutrient for healthy growth of plants. It can be harmful to boron sensitive plants in higher quantities. Care should be taken to minimise the amount of borate product released to the environment.

PERSISTENCE AND DEGRADABILITY: Biodegradation is not an applicable endpoint since the product is an inorganic substance.

BIOACCUMULATIVE POTENTIAL: This product will undergo hydrolysis in water to form undissociated boric acid. Boric acid will not biomagnify through the foodchain. Octanol/Water partition coefficient: Log Pow = -0.7570 @ 25°C (based on boric acid)²⁷.

MOBILITY IN SOIL: The product is soluble in water and is leachable through normal soil. Adsorption to soils or sediments is insignificant.

OTHER ADVERSE EFFECTS: None

SECTION 12 NOTES: The information in this section is based on other borates and is normalized to boron content. Boron is the element in sodium polyborate which is used to characterize borate product ecological effects.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Small quantities of Board Defense® can usually be disposed of at municipal landfill sites. No special disposal treatment is required, but refer to state and local regulations for applicable site-specific requirements. Tonnage quantities of Board Defense® are not recommended to be sent to landfills. Such product should, if possible, be re-used for an appropriate application. Product packaging should be recycled where possible. Avoid spillage into water and cover drains.

RCRA HAZARD CLASS: Board Defense® is not listed under any section of the Federal Resource Conservation and Recovery Act (RCRA).

California Hazardous Waste Designation: California identifies substances with acute oral, acute dermal, or acute inhalation LD₅₀s less than 2,500, 4,300, or 10,000 mg/kg, respectively as "hazardous wastes." Additionally, the aquatic LC₅₀ is less than 500 mg/L, the chemical is considered a "hazardous waste." Board Defense® is therefore a "hazardous waste" if spilled in California, and should be handled in accordance with applicable state regulations. Refer to Regulatory Information for additional information.

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION: Board Defense® is not a US Department of Transportation (DOT) Hazardous Material or Hazardous Substance.

OTHER AGENCIES: Board Defense® has no UN Number and is not regulated under international rail, highway, water, or air transport regulations.

SECTION 15: REGULATORY INFORMATION

TSCA NO.: Disodium octaborate tetrahydrate appears on the EPA TSCA inventory list under the CAS No. 12008-41-2, which represents the anhydrous form of this inorganic salt. TSCA Inventory Number: 12008-41-2.

FIFRA: Board Defense® (insecticide) is registered with the EPA, in accordance with Section 3 of FIFRA, as a pesticide product. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

Caution

Harmful if swallowed.

Causes moderate eye irritation.

Avoid contact with eyes or clothing.

Wash hands before eating, drinking, chewing gum, using tobacco, or the toilet.

EPA Pesticide Registration Number: 44757-20

RCRA: Disodium octaborate tetrahydrate is not listed as a hazardous waste under any sections of the Resource Conservation and Recovery Act or regulations (40) CFR 261 et seq.).

SUPERFUND: CERCLA/SARA. Disodium octaborate tetrahydrate is not listed under CERCLA (the Comprehensive Environmental Response Compensation and Liability Act) or its 1986 amendments, SARA, (the Superfund Amendments and Reauthorization Act), including substances listed under Section 313 of SARA, Toxic Chemicals, 42 USC 11023, 40 CFR 372.65; Section 302 of SARA, Extremely Hazardous Substances, 42 USC 11002, 40 CFR 355; or the CERCLA Hazardous Substances list, 42 USC 9604, 40 CFR 302.

SAFE DRINKING WATER ACT: Disodium octaborate tetrahydrate is not regulated under the SDWA, 42 USC 300g-1, 40 CFR 141 et seq. Consult state and local regulations for possible water quality advisories regarding boron.
Clean Water Act (Federal Water Pollution Control Act): 33 USC 1251 et seq.

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- a.) Disodium octaborate tetrahydrate is not itself a discharge covered by any water quality criteria of Section 304 of the CWA, 33USC 1314
- b.) It is not on the Section 307 List of Priority Pollutants, 33 USC 1317, 40 CFR 129
- c.) It is not on the Section 311 List of Hazardous Substances, 33 USC 1321, 40 CFR 116.

OSHA/CAL OSHA: This MSDS document meets the requirements of both OSHA (29 CFR 1910.1200) and Cal OSHA (Title 8 CCR 5194(g)) hazard communication standards. Refer to Exposure Control/Personal Protection for regulatory exposure limits.

IARC: The International Agency for Research on Cancer (of the World Health Organization) does not list or categorize disodium octaborate tetrahydrate as a carcinogen.

NTP ANNUAL REPORT ON CARCINOGENS: Disodium octaborate tetrahydrate is not listed.

OSHA CARCINOGEN: Disodium octaborate tetrahydrate is not listed.

CALIFORNIA PROPOSITION 65: Disodium octaborate tetrahydrate is not listed on any Proposition 65 lists of carcinogens or reproductive toxicants.

SECTION 16: OTHER INFORMATION

REFERENCES:

1. Litovitz T L, Norman S A, Veltri J C, Annual Report of the American Association of Poison Control Centers Data Collection System. Am. J. Emerg. Med. (1986), 4, 427-458
2. REACH Consortium for Borates (2010) Chemical Safety Report for Boric Acid. <http://apps.echa.europa.eu/registered/registered-sub.aspx#search>
3. Fernandez et al. (1984) Phytol (Buenos Aires) 44: 125-133.
4. Antia and Cheng (1975) J Fish Res Bd Can 32: 2487-2494.
5. Bergman, Bruchlos, Marks (1995) Tenside Surf Det 32: 229-237.
6. Wang (1986) Environ Poll (Ser B) 11: 1-14.
7. Gersich and Milazzo (1990) Arch. Environ. Contam. Toxicol. 19: 72-76.
8. Hooftman, van Dongelen-Sevenhuijsen and de Haan (2000), Unpublished report no. V99.1146 to Borax Europe Limited.
9. Dyer (2001) Chemosphere 44: 369-376.
10. Hansveit and Oldersma (2000) Unpublished report no: V99-157 to Borax Europe Limited.
11. Soucek, Dickinson, Major (2010) Unpublished report to REACH Consortium for Borates.
12. Maier and Knight (1991) Arch. Environ. Contam. Toxicol. 20, 282 - 287.
13. Hamilton and Buhl (1990) Arch. Environ. Contam. Toxicol. 19, 366-373.
14. Li, et al. (2007) Aquaculture 278, 175-178.
15. Pillard et al. (2002) Environ Toxicol Chem, 21, 2131-2137.
16. Taylor et al. (1985) Aquat Toxicol, 7, 135-144.
17. Gerke, A (2011a). Unpublished report to REACH Consortium for Borates.
18. Gerke, A (2011b). Unpublished report to REACH Consortium for Borates.
19. Hanstveit and Schoonmade (2000). Unpublished report no.: V99.156 to Borax Europe Limited.
20. Guhl (2000) SÖFW-Journal 126: 17-24.
21. Hosseini et al. (2007) J Plant Nutrition, 30, 773-781.
22. Aquaterra Environmental (1998) Unpublished report to Environment Canada, Environmental Technology Centre.
23. Becker-van Slooten, Campiche, Tarradellas (2003). Unpublished report to Environment Canada, Environmental Technology Centre.
24. Moser and Becker (2009) Unpublished report to REACH Consortium for Borates.
25. Van Laer, Salaets, Smolders (2010) Unpublished report to REACH Consortium for Borates.
26. Förster and Becker (2009) Unpublished report to REACH Consortium for Borates.
27. Cordia et al. (2003) Unpublished report no: PML 2002-C42r to Borax Europe, Ltd.

OTHER INFORMATION: This SDS was finalized on January 1, 2015 and is compliant with OSHA HCS/HazCom 2012 Final Rule. This replaces the previous version dated January 1, 2014.

DISCLAIMER: Information presented herein has been compiled from sources considered dependable and is accurate and reliable to the best of our knowledge and belief, but it is not guaranteed to be so. Nothing herein is to be construed as recommending any practice or any product in violation of any law or regulation. It is the user's responsibility to determine the suitability of any material for a specific purpose and adopt necessary safety precautions. We make no warranty as to results to be obtained in using any material and, since conditions or use are not under our control, we must necessarily disclaim all liability with respect to use of any material supplied by us.