

Material Safety Data Sheet

BORATHOR

Emergency Phone 1-800-424-9300 (Chemtrec)

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: BORATHOR

CHEMICAL NAME: Disodium octaborate tetrahydrate (D. O. T.)

CHEMICAL FORMULA: Na₂B₈O₁₃·4H₂O

CHEMICAL FAMILY: Inorganic borates

COMPANY: Ensysstex II, Inc.

ADDRESS: 2713 Breezewood Ave., Fayetteville, NC 28303

DAYTIME PHONE: 1-866-367-8467 (1-866-FOR-THOR)

2. COMPOSITION / INFORMATION ON INGREDIENTS

Disodium octaborate tetrahydrate 98% CAS# 12280-03-4

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: D. O. T. is a white, odorless, powdered substance that is not flammable, combustible, or explosive and has low acute oral and dermal toxicity.

SIGNS AND SYMPTOMS OF EXPOSURE: Symptoms of accidental over-exposure to D. O. T. might include nausea, vomiting, and diarrhea, with delayed effects of skin redness and peeling.

POTENTIAL HEALTH EFFECTS: Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because D. O. T. is poorly absorbed through intact skin.

POTENTIAL ECOLOGICAL EFFECTS: Large amounts of D. O. T. can be harmful to plants and other species. Therefore, releases to the environment should be minimized.

4. FIRST AID MEASURES

INHALATION: If symptoms such as nose or throat irritation are observed, remove person to fresh air. Occasional mild irritation effects to nose and throat may occur from inhalation of D. O. T. dust at levels greater than 10 mg/m³.

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

SKIN CONTACT: No treatment necessary because non-irritating.

INGESTION: D. O. T. has a low acute toxicity. 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. Swallowing larger amounts may cause gastrointestinal symptoms.

5. FIRE FIGHTING MEASURES

GENERAL HAZARD: None, because D. O. T. is not flammable, combustible or explosive. D. O. T. itself a flame retardant.

EXTINGUISHING MEDIA: Any extinguishing media may be used on nearby fires.

FLAMMABILITY CLASSIFICATION (29CFR1910.1200): Non-flammable solid.

HAZARDOUS DECOMPOSITION PRODUCTS: None.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Reaction with strong reducing agents, such as metal hydrides or alkali metals, will generate hydrogen gas, which could create explosive hazard.

6. ACCIDENTAL RELEASE MEASURES

GENERAL: D. O. T. is a water-soluble white powder that may, at high concentrations, cause damage to trees or vegetation by root absorption.

LAND SPILL: Vacuum, shovel or sweep up D. O. T. and place in container for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during cleanup and disposal. Personal protective equipment is not needed to cleanup land spills.

SPILLAGE INTO WATER: 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. D. O. T. is a non-hazardous waste when spilled or disposed of; as defined in the Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261).

7. HANDLING AND STORAGE

GENERAL PROCEDURES: No special handling precautions are required, but dry indoor storage is recommended. Good housekeeping procedures should be followed to minimize dust generation and accumulation.

STORAGE CONDITIONS: Ambient air temperatures and a low moisture environment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTION: Eye protection, protective clothing, and waterproof gloves may be necessary under certain high exposure conditions. Otherwise, refer to label for actual regulatory personal protection requirements.

OCCUPATIONAL EXPOSURE LIMITS: D. O. T. is considered to be a nuisance dust by OSHA, Cal OSHA, and ACGIH. The OSHA/PEL is 15mg/m³ total dust and 5mg/m³ respirable dust. The Cal OSHA/PEL and ACGIH/TLV are 10 mg/m³. Use local exhaust or engineering controls to prevent exceeding exposure limits if possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: White, odorless, powder

BULK DENSITY: 320 to 480 kg/m³

VAPOR PRESSURE: Negligible @ 20°C

SOLUBILITY IN WATER: 9.7% @ 20°C; 34.3% @ 50°C

MELTING POINT: 815°C

pH @ 20°C: 8.3 (3.0% solution) 7.6 (10.0% solution)

MOLECULAR WEIGHT: 412.52

10. STABILITY AND REACTIVITY

GENERAL: D. O. T. is a stable product.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Reaction with strong reducing agents, such as metal hydrides or alkali metals, will generate hydrogen gas, which could create explosive hazard.

11. TOXICOLOGICAL INFORMATION

INGESTION: Low acute oral toxicity. LD50 in rats is 2,550 mg/kg of body weight.

SKIN/DERMAL: Low, acute dermal toxicity. LD50 in rabbits is greater than 2,000 mg/kg of body weight. D. O. T. is poorly absorbed through intact skin.

INHALATION: Low acute inhalation toxicity. LD50 in rats is greater than 2.0 mg/L (or g/m³).

SKIN IRRITATION: Non-irritant.

EYES IRRITATION: Draize test in rabbits produced mild eye irritation effects. Years of occupational exposure to D. O. T. indicates no adverse effects on human eye. Therefore D. O. T. is not considered to be a human eye irritant in normal industrial use.

SENSITIZATION: D. O. T. is not a skin sensitizer.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

GENERAL: Boron (B) is the element in D. O. T. which is used by convention to report borate product ecological effects. To convert D. O. T. into the equivalent boron (B) content, multiply by 0.2096.

PHYTOTOXICITY: Boron is an essential micronutrient for healthy growth of plants; however, it can be harmful to boron sensitive plants (e.g. grass and ornamentals) in high quantities.

ALGAL TOXICITY: Green algae, *Scenedesmus subspicatus* 96-hr EC10 = 24 mg B/L

INVERTEBRATE TOXICITY: Daphnids, *Daphnia magna straus* 24-hr EC50=242 mg B/L Test substance: sodium tetraborate.

FISH TOXICITY:

Seawater: Dab, *Limanda limanda* 96-hr LC50 74 MG B/L

Freshwater:

Rainbow trout, *S. gairdneri* (embryo-larval stage) 24-day LC50 = 88 mg B/L 32-day LC50 = 54 mg B/L

Goldfish, *Carassius auratus* (embryo-larval stage) 7-day LC50 = 65 mg B/L 3-day LC50 = 71 mg B/L

13. DISPOSAL CONSIDERATIONS

DISPOSAL GUIDANCE: Consult state and local authorities for disposal guidelines.

RCRA (40 CFR 261): D. O. T. is not listed under any sections of the Federal Resource Conservation and Recovery Act (RCRA).

14. TRANSPORT INFORMATION

D. O. T. is not regulated by the U.S. Department of Transportation.

15. REGULATORY INFORMATION

UNITED STATES

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

CALIFORNIA PROPOSITION 65: D. O. T. is not listed on the Proposition 65 list of carcinogens or reproductive toxicants.

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT): D. O. T. is not listed.

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): D. O. T. is not listed.

SAFE DRINKING WATER ACT (SDWA): D. O. T. is not regulated under the SDWA, 42 USC 300g-l, 40 CFR 141 et seq. Consult state and local regulations for possible water quality advisories regarding boron compounds.

CLEAN WATER ACT (CWA) (Federal Water Pollution Control Act): 33 USC 1251 et seq. D. O. T. is not itself a discharge covered by any water quality criteria of Section 304 of the CWA, 33 USC 1314. D. O. T. is not on the Section 307 List of Priority Pollutants, 33 USC 1317, 40 CFR 129. D. O. T. is not on the Section 311 List of Hazardous Substances, 33 USC 1321, 40 CFR 116

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