



MATERIAL SAFETY DATA SHEET

Disodium tetra-Borate, 10-hydrate

1. Product Identification

Synonyms: Borax, Sodium Borate
CAS No.: 1303-96-4
Molecular Weight: 381.37
Chemical Formula: Na₂B₄O₇·10H₂O
Product Codes: D222

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Disodium tetra-Borate, 10-hydrate	1303-96-4	99 - 100%	Yes

3. Hazards Identification

EMERGENCY OVERVIEW

WARNING!! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.
CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Health Rating: 2 - Moderate (Life)

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate (Life)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Green (General Storage)

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Inhalation:

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.

Ingestion:

May cause nausea, vomiting, diarrhea, muscular spasms, dullness, lethargy, circulatory depression, central nervous system depression, shock, kidney damage, coma, and death. Estimated lethal dose 15 to 20 grams.

Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain. May be absorbed through the skin with possible systemic effects.

Eye Contact:

Causes irritation, redness, and pain.

Potential Chronic Health Effects:

Prolonged or repeated ingestion or skin absorption may cause anorexia, weight loss, vomiting, mild diarrhea, skin rash, convulsions, and anemia.

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

Repeated or prolonged exposure is not known to aggravate medical condition

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:

Not available.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures**Fire:**

Not considered to be a fire hazard.

Explosion:

Not considered to be an explosion hazard.

Special Remarks on Explosion Hazards:

Not available.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Products of Combustion:

Not available.

Fire Hazards in Presence of Various Substances:

Not applicable.

Special Information on Fire Hazards:

Noncombustible.

Fire Fighting Media and Instructions:

Not applicable.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Neutralize the residue with a dilute solution of acetic acid. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

7. Handling and Storage**Precautions:**

Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage:

No specific storage is required. Use shelves or cabinets sturdy enough to bear the weight of the chemicals. Be sure that it is not necessary to strain to reach materials, and that shelves are not overloaded.

8. Exposure Controls/Personal Protection**Airborne Exposure Limits:**

- NIOSH Recommended Exposure Limit (REL): 1 mg/m³ (TWA)
- ACGIH Threshold Limit Value (TLV): 5 mg/m³ (TWA).

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Personal Respirators:

If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece particulate respirator (NIOSH type N100 filters) may be worn for up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator.

WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties**Appearance:**

White, Gray, Bluish or Greenish White Streaked Crystals.

Odor:

Odorless.

Solubility:

6g/100g water

Density:

1.73.

pH:

Alkaline.

% Volatiles by volume @ 21C (70F):

0.

Boiling Point:

320C (608F) Loses water.

Melting Point:

75C (167F).

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Molecular Weight:

381.37

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity**Stability:**

Stable under ordinary conditions of use and storage.

Conditions to Avoid:

Incompatibles.

Conditions of Instability:

Not available.

Incompatibilities:

Acids, alkaloids, and metallic salts.

Hazardous Decomposition

Toxic gases and vapors may be released if involved in a fire.

Special Remarks on Reactivity:

Not available.

Corrosivity:

Non-corrosive in presence of glass.

Hazardous Polymerization:

Will not occur.

11. Toxicological Information**Routes of Entry:**

Eye contact.

Toxicity to Animals:

Acute oral toxicity (LD50): 2660 mg/kg [Rat.].

Chronic Effects on Humans:

Not available.

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Chronic Effects on Humans:

Not available.

Special Remarks on other Toxic Effects on Humans:

Ingestion of 5-10 grams has produced severe vomiting, diarrhea, shock and death

12. **Ecological Information**

Ecotoxicity:

Not available

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation:

The products of degradation are more toxic.

13. **Disposal Considerations**

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Waste Disposal:

14. **Transport Information**

DOT Classification:

Not a DOT controlled material.

Identification:

Not applicable.

Special Provisions for Transport:

Not available.

Protective Equipment:

Gloves (impervious). Synthetic apron. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

15. **Other Information**

NFPA Ratings: Health: **1** Flammability: **0** Reactivity: **0**

Label Hazard Warning:

WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Label Precautions:

Avoid contact with eyes, skin and clothing.

Avoid breathing dust.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not

breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.



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