

SAFETY DATA SHEET

SODIUM TETRABORATE DECAHYDRATE

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1. PRODUCT IDENTIFIER

Substance name: SODIUM TETRABORATE DECAHYDRATE

Chemical formula: Na₂B₄O₇·10H₂O

CAS Number: 1303-96-4

EC Number: 215-540-4

Index number: 005-011-00-4

Registration number: 01-2119490790-32-XXXX

Synonyms: sodium tetraborate decahydrate, borax decahydrate, sodium heptaoxotetraborate 10-hydrate, disodium tetraborate decahydrate

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Identified uses: used in industrial production, in particular: ceramics, detergents, borosilicate glass, insulating glass fibers, starch-based adhesives. The product is intended for professional use only. Uses advised against: consumer uses above specified concentration limits.

1.3. SUPPLIER INFORMATION FOR THE SAFETY DATA SHEET

DISTRIBUTOR:

NAT Sp. z o.o.

ul. Wrocławska 33d,

Długoleka

55-095 Mirków

1.4. EMERGENCY PHONE NUMBER

Emergency phone: +48 71 302 69 97 (available 7:00 AM – 3:00 PM Mon–Fri)

SECTION 2. HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Classification in accordance with Regulation (EC) No. 1272/2008

Eye irritation (Eye Irrit. 2); H319

Reproductive toxicity (Repr. 1B); H360FD

The full text of the H and EUH statements is provided in Section 16.

2.2. LABELING ELEMENTS

Pictograms



Signal word

Danger

Hazard statements (H, EUH):

H319 Causes serious eye irritation.

H360FD May impair fertility. May harm the unborn child.

Precautionary statements:

P201 Read special precautions before use.

P202 Do not use until you have read and understood all safety precautions.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313 If exposed or in contact: Get medical advice/attention. P405 Keep locked up.

P501 Dispose of contents/container in accordance with national regulations.

2.3. OTHER HAZARDS

The substance does not meet the criteria for classification as a PBT or vPvB in accordance with Annex XIII. The substance has not been identified as having endocrine-disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. SECTION

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. SUBSTANCES

Chemical name	CAS number	EC number	Index number
Sodium tetraborate decahydrate	1303-96-4	215-540-4	005-011-00-4

It is included on the Candidate List of Substances of Very High Concern (SVHC).

SECTION 4. FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

- **Eye contact:** Rinse eyes with plenty of water for about 15 minutes while holding the eyelids wide open. Avoid a strong water jet due to the risk of mechanical damage to the cornea. If irritation persists, seek medical attention.
- **Skin contact:** Remove contaminated clothing. Rinse contaminated skin with plenty of water. If symptoms persist, consult a doctor.
- **Inhalation:** Remove the affected person from the exposure area to fresh air. The first aider should be equipped with appropriate respiratory protection. If symptoms occur, seek medical advice.
- **Ingestion:** If a large amount (more than a teaspoon) is ingested, seek medical advice immediately or contact a poison control center.

4.2. MOST IMPORTANT ACUTE AND DELAYED SYMPTOMS AND EFFECTS OF EXPOSURE

Eye contact: Irritating to the eyes. Causes irritation.

Inhalation: Mild irritation of the nose and throat may occur as a result of inhaling dust.

Ingestion: Sodium tetraborate decahydrate is slightly toxic if swallowed. Ingestion of small amounts (a teaspoonful) causes no effects. Ingestion of larger amounts may cause gastrointestinal disturbances.

Additional information:

May impair fertility. May harm the unborn child.

Symptoms of accidental overexposure to the substance are associated with ingestion or absorption through a large area of damaged skin. They may include nausea, vomiting, and diarrhea with a delayed skin reaction: redness and peeling.

4.3. GUIDELINES FOR IMMEDIATE MEDICAL ASSISTANCE AND SPECIFIC MANAGEMENT OF THE INJURED PERSON

If an adult ingests less than 9 grams of the substance, only medical observation is required. If more than 9 grams are ingested, renal function should be monitored and fluids administered. Gastric lavage is recommended only in patients who have developed symptoms. Hemodialysis should be used in patients who have experienced significant acute absorption, particularly in patients with impaired renal function. Analysis of boron concentrations in urine or blood is helpful only for verifying exposure, not for assessing the degree of poisoning or as an aid in treatment.



SECTION 5. FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable extinguishing media: water spray, dry chemical, foam—appropriate for materials stored in the immediate vicinity. Unsuitable extinguishing media: none known.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Non-flammable substance; does not possess explosive properties. It is a flame-retardant. Hazardous gases/vapors/ smoke may be released in a fire environment.

5.3. INFORMATION FOR FIREFIGHTERS

Do not enter the hazard zone without special protective clothing and self-contained breathing apparatus. Prevent water and firefighting agents from entering sewers, surface and groundwater, and soil.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES

Avoid generating dust; do not inhale dust. Avoid contamination with the substance. Do not walk on spilled material. Ensure good ventilation in enclosed spaces. Use personal protective equipment.

6.2. ENVIRONMENTAL PRECAUTIONS

In high concentrations, the substance may cause damage to trees or vegetation through root absorption. Do not allow the substance to enter sewers, surface water, groundwater, or soil. If the substance enters the environment, notify the appropriate authorities.

6.3. METHODS AND MATERIALS TO PREVENT THE SPREAD OF CONTAMINATION AND TO REMOVE CONTAMINATION

If possible, contain the spill (close and/or seal the container; place damaged containers in an emergency container). Collect the spilled product dry, avoiding the generation of dust, into a labeled container; dispose of it. Clean the contaminated area.

6.4. REFERENCES TO OTHER SECTIONS

Personal protective equipment—see Section 8. Waste disposal—see Section 13. SECTION

7. HANDLING AND STORAGE OF SUBSTANCES AND MIXTURES

7.1. PRECAUTIONS FOR SAFE HANDLING

Do not eat, drink, smoke, or take medication during use. Avoid contact with the substance; avoid generating and inhaling dust. Observe personal hygiene rules; wear protective clothing and equipment. Work in adequately ventilated areas. Wash hands thoroughly with water after use. Remove contaminated protective clothing and equipment before entering areas designated for eating.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING INFORMATION ON ANY INCOMPATIBILITIES

Store the substance in properly labeled, tightly closed containers in a dry, cool, and well-ventilated area. Keep under lock and key. Store away from pressure regulators. To maintain container integrity and minimize product caking, bags should be handled on a “first-in, first-out” basis.

7.3. SPECIFIC END USE(S)

See Section 1.2.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTIVE EQUIPMENT

8.1. EXPOSURE CONTROL PARAMETERS

Exposure control parameters (NDS, NDSC_h, NDSP):

10-Sodium heptaoxotetraborate hydrate:

NDS: 0.5 mg/m³ - inhalable fraction

NDSC_h: 2 mg/m³ - inhalable fraction

- Maximum permissible concentrations according to Polish law.

- Recommendations regarding the procedure for monitoring the content of hazardous substances in the air – measurement methods: - Regulation of the Minister of Health of February 2, 2011 (Journal of Laws No. 33, item 166).

DNEL and PNEC values:

- DNEL for workers, inhalation, long-term exposure, systemic effects: 12.8 mg/m³

- DNEL for workers, dermal, long-term exposure, systemic effects: 599.6 mg/kg body weight/day

- DNEL for consumers, inhalation, long-term exposure, systemic effects: 6.5 mg/m³

- DNEL for consumers, dermal, long-term exposure, systemic effects: 303.5 mg/kg body weight/day

- DNEL for consumers, oral, long-term exposure, systemic effects: 1.15 mg/kg body weight/day

- DNEL for consumers, oral, short-term exposure, systemic effects: 1.5 mg/kg body weight/day

- PNEC for freshwater: 2.9 mg/dm³

- PNEC marine water: 2.9 mg/dm³

- PNEC sporadic release: 13.7 mg/dm³

- PNEC wastewater treatment plants: 10 mg/dm³

- PNEC soil: 5.7 mg/kg dry weight of soil

8.2. EXPOSURE CONTROL

Engineering controls to be used:

Ensure adequate ventilation, including appropriate local exhaust ventilation, process enclosures, or other safeguards designed to keep worker exposure to the substance at the lowest possible levels in the workplace.

Personal Protective Equipment (PPE):

Select appropriate protective clothing for the workplace based on the concentration and quantity of the substance. The chemical resistance of protective clothing should be confirmed by the manufacturer.

a) Eye or face protection: wear safety goggles.

b) Skin protection: Hand protection: Use chemical-resistant protective gloves made of, for example, nitrile rubber, butyl rubber, neoprene, or PVC, with thickness and breakthrough time depending on the duration of exposure (minimum thickness 0.11 mm, breakthrough time from >10 min to >480 min). Protective gloves must be tested for suitability for the specific workplace (e.g., mechanical strength, product resistance, antistatic properties). Follow the glove manufacturer's instructions and information regarding use, storage, and care.

- Other: protective footwear and clothing.

- Protective and hygiene measures: Change contaminated clothing immediately. Wash hands and face thoroughly after working with this substance. Do not inhale the substance. Under no circumstances should meals be consumed at the workplace.

c) Respiratory protection: In case of inadequate ventilation, use appropriate respiratory protection equipment against dust/aerosols (dust mask).

• The employer is required to ensure that the personal protective equipment, clothing, and footwear used possess the necessary protective and functional properties, and to ensure their proper washing, maintenance, repair, and decontamination.

Environmental Exposure Control: Do not allow the product to enter sewers, surface water, groundwater, or soil.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

- a) Physical state: solid (in the form of granules, powder)
- b) Color: white
- c) Odor: odorless
- d) Melting/freezing point: 741°C
- e) Boiling point or initial boiling range: 1575°C
- f) Flammability: non-flammable
- g) Lower and upper explosion limits: not applicable
- h) Ignition temperature: not applicable
- i) Autoignition temperature: not applicable
- j) Decomposition temperature: no data available
- k) pH: 9.2 (1% solution; 20°C)
- l) Kinematic viscosity: not applicable
- m) Solubility: - in water: 4.7% (20°C); 65.6% (100°C)
- n) Partition coefficient: n-octanol/water (log value): no data available
- o) Vapor pressure: no data available
- p) Density or relative density: 1.71 (20°C)
- q) Relative vapor density: not applicable
- r) Particle characteristics: no data available

9.2. OTHER INFORMATION:

No further information available.

SECTION 10. STABILITY AND REACTIVITY

10.1. REACTIVITY

The substance is not reactive under normal conditions of use, storage, and transport.

10.2. CHEMICAL STABILITY

The substance is stable under recommended conditions of use and storage. When heated, it loses its water of crystallization, ultimately forming an anhydrous substance.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

Under normal conditions of use and storage, no hazardous reactions occur. Reaction with strong reducing agents, such as metal hydrides, acetic anhydride, or alkali metals, leads to the formation of hydrogen gas, which may pose an explosion hazard.

10.4. CONDITIONS TO AVOID

High temperatures.

10.5. INCOMPATIBLE MATERIALS

Strong reducing agents, metal hydrides, acetic anhydride, alkali metals.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous gases/vapors/smoke may form in a fire environment.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON HAZARD CLASSES AS DEFINED IN REGULATION (EC) No 1272/2008

a) Acute toxicity:

LD50 (oral, rat): >2500 mg/kg (anhydrous substance)

LD50 (dermal, rabbit): >2000 mg/kg

Acute toxicity (oral): does not meet classification criteria.

Acute toxicity (dermal): does not meet classification criteria.

b) Skin corrosion/irritation: sodium tetraborate pentahydrate is poorly absorbed through intact skin. It does not cause irritation. Based on available data, classification criteria are not met.

c) Serious eye damage/eye irritation: Sodium tetraborate pentahydrate causes severe eye irritation. It is irritating to the eyes.

d) Respiratory or skin sensitization: Based on available data, the classification criteria are not met.

e) Germ cell mutagenicity: Based on available data, the classification criteria are not met.

f) Carcinogenicity: Based on available data, the classification criteria are not met.

g) Adverse effects on reproduction: Animal studies (rats, mice, dogs) in which the animals were fed large amounts of boric acid have shown effects on reproduction and testicular function. Studies in rats, mice, and rabbits showed that high doses of a chemically related compound to boric acid affect fetal development, including reduced fetal body weight and minor skeletal changes. The doses administered were several times higher than the amounts to which a human would be exposed under normal conditions. Epidemiological studies in humans have not shown an increased incidence of lung disease in individuals with chronic occupational exposure to sodium borate dust. An epidemiological study conducted under conditions of normal occupational exposure to borate dust did not show any adverse effects on reproduction. May impair fertility. May harm the unborn child.

h) Target organ toxicity – single exposure: Based on available data, the classification criteria are not met.

i) Target organ toxicity – repeated exposure: Based on available data, the classification criteria are not met.

j) Aspiration hazard: Based on available data, the classification criteria are not met.

Symptoms related to physical, chemical, and toxicological properties:

Eye contact: causes irritation. **Inhalation:** mild irritation of the nose and throat is possible due to inhalation of dust.

Ingestion: sodium tetraborate decahydrate is slightly toxic if ingested. Ingestion of small amounts (up to a teaspoon) causes no effects. Ingestion of larger amounts may cause gastrointestinal disturbances.

Symptoms of accidental overexposure to the substance are associated with its ingestion or absorption through a large area of damaged skin. These may include nausea, vomiting, and diarrhea with a delayed skin reaction: redness and peeling.

11.2. INFORMATION ON OTHER HAZARDS

The substance has not been identified as having endocrine-disrupting properties.

SECTION 12. ECOLOGICAL INFORMATION

12.1. TOXICITY

Ecotoxic effects:

Boron is a micronutrient essential for healthy plant growth; however, it can be harmful in higher concentrations to boron-sensitive plants. Therefore, care should be taken to minimize the release of borate products into the environment.

LC50 (fish, thickhead minnow *Pimephales promelas*, 96 h): 79.7 mg/dm³

LC50 (fish, dab *Limanda limanda*): 74 mg/dm³

NOEC (fish, zebrafish *Danio rerio*, 34 d): 6.4 mg/dm³

EC50 (algae and cyanobacteria, diatom *Phaeodactylum tricornutum*, 72 h): 54–66 mg/dm³

12.2. PERSISTENCE AND DEGRADABILITY

Boron is a naturally occurring and ubiquitous substance in the environment. Sodium tetraborate decahydrate degrades in the environment to natural borate.

12.3. BIOACCUMULATION POTENTIAL

Bioaccumulation is not expected.

12.4. MOBILITY IN SOIL

The substance is soluble in water; therefore, there is no risk of accumulation in soil.

12.5. RESULTS OF THE PBT AND vPvB ASSESSMENT

The substance does not meet the criteria for classification as a PBT or vPvB in accordance with Annex XIII.

12.6. ENDOCRINE-DISRUPTING PROPERTIES

The substance has not been identified as having endocrine-disrupting properties.

12.7. OTHER HARMFUL EFFECTS

Do not allow to enter water, wastewater, or soil.

SECTION 13. WASTE DISPOSAL

13.1. WASTE DISPOSAL METHODS

Dispose of the product and packaging in accordance with local environmental laws and regulations.

Packaging: Dispose of empty single-use packaging through an authorized waste collector. Reusable packaging may be reused, if necessary after cleaning.

Waste classification:

- **Substance:** appropriate for the place of generation based on the criteria set forth in applicable regulations.

- **Packaging:** 15 01 02 – plastic packaging

Act of December 14, 2012, on Waste (Journal of Laws 2013, item 21).

Act of June 13, 2013, on Packaging and Packaging Waste Management (Journal of Laws, item 888).

Regulation of the Minister of Climate of January 2, 2020, on the Waste Catalog (Journal of Laws, item 10).

SECTION 14. TRANSPORT INFORMATION

Not subject to transport regulations.

14.1. UN NUMBER OR ID NUMBER

Not applicable

14.2. UN PROPER SHIPPING NAME

Not applicable

14.3. TRANSPORT HAZARD CLASS(ES)

Not applicable

14.4. PACKING GROUP

Not applicable



14.5. ENVIRONMENTAL HAZARDS

Not applicable

14.6. SPECIAL PRECAUTIONS FOR USERS

No data available

14.7. MARITIME BULK TRANSPORT IN ACCORDANCE WITH IMO INSTRUMENTS

Not applicable

- Act on the Transport of Dangerous Goods
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)
- Regulation of the Minister of Labor and Social Policy of March 14, 2000 (Journal of Laws No. 26, item 313) on occupational safety and health in manual transport operations.

SECTION 15. REGULATORY INFORMATION

15.1. SAFETY, HEALTH, AND ENVIRONMENTAL REGULATIONS SPECIFIC TO THE SUBSTANCE OR MIXTURE

- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of December 18, 2006, on REACH.
- Regulation of the Minister of Family, Labor, and Social Policy on the maximum permissible concentrations and intensities of factors harmful to health in the workplace (Journal of Laws of 2018, item 1286), as amended
- Regulation of the Minister of Development, Labor, and Technology amending the regulation on maximum permissible concentrations and intensities of factors harmful to health in the workplace (Journal of Laws of 2021, item 325).
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of December 16, 2008, on the classification, labeling, and packaging of substances and mixtures, amending and repealing Directives 67/548/ EEC and 1999/45/EC and amending Regulation (EC) No 1907/2006 – consolidated version.
- Commission Regulation (EU) No. 2020/878 of June 18, 2020, amending Annex II to Regulation (EC) No. 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH).
- Act of February 25, 2011, on Chemical Substances and Their Mixtures.
- Substance subject to restrictions on the manufacture, placing on the market, and use of certain hazardous substances, mixtures, and articles pursuant to Title VIII of Regulation (EC) No. 1907/2006 (REACH).

15.2. CHEMICAL SAFETY ASSESSMENT

A chemical safety assessment has been conducted.

SECTION 16. OTHER INFORMATION

Hazard statements (H, EUH):

- H319 Causes serious eye irritation.
- H360FD May impair fertility. May harm the unborn child.

Abbreviations and acronyms used in the safety data sheet:

- ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
- DNEL - Derived No-Effect Level
- EC50 - Effective concentration at which 50% of the test organisms die
- ECHA - European Chemicals Agency
- IMO - International Maritime Organization
- LC50 - Concentration at which 50% of test organisms die
- LD50 - Dose at which 50% of test organisms die
- NDS - Maximum Permissible Concentration
- NDSch - Maximum Permissible Instantaneous Concentration
- NDSP - Maximum Permissible Ceiling Concentration
- NOEC - Highest concentration at which no adverse effects are observed
- CAS number - a numerical identifier for a chemical substance assigned by the Chemical Abstracts Service (CAS)
- UN/ID number - a four-digit identification number for a material or article, derived from the UN Model Regulations
- EC number - a number assigned to a chemical substance in the European EINECS, ELINCS, or NLP registers
- PBT - (Substance) Persistent, bioaccumulative, and toxic
- PNEC - Predicted No-Effect Concentration
- SVHC - Substances of Very High Concern
- EU - European Union
- PvB - (Substance) Very Persistent and Very Bioaccumulative
- EC - European Community



The information contained in this data sheet is derived from sources we believe to be reliable. The conditions and methods of handling, storing, using, and disposing of the product are beyond our control and fall outside our scope of responsibility. For this reason, among others, we disclaim any liability for losses, damage, or costs resulting from the handling, storage, or disposal of the product.

This safety data sheet should be used only for this product.

Other sources of information:

ECHA (European Chemicals Agency)

Supplier's safety data sheet

Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16. Sheet adapted to Regulation No. 2020/878

The data contained in Section 9 is for informational purposes only; it does not constitute a commercial offer within the meaning of the law (Article 71 of the Civil Code) and does not replace the parameters contained in the Quality Control Certificate.