MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 07/13/2012 Version 1.1

SECTION 1. Identification

Product identifier

Product number	101964
Product name	di-Sodium tetraborate decahydrate certified secondary standard reference material for pH measurement; directly traceable to primary SRM from NIST/PTB pH(S)=9.18$_4$ (25°C) (DIN 19266) CertiPUR®

Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Reagent for analysis

Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | SDS Phone Support: +1-978-715-1335 | General Inquiries: +1-978-751-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) e-mail: mm_sds@merckgroup.com
Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Reproductive toxicity, Category 1B, H360FD

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Danger

Hazard Statements
H360FD May damage fertility. May damage the unborn child.

Precautionary Statements
P201 Obtain special instructions before use.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Restricted to professional users.

OSHA Hazards
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards
None known.

SECTION 3. Composition/information on ingredients

Chemical nature	Aqueous solution	
Formula	$Na_2B_4O_7$*10 H_2O	$B_4Na_2O_7$*10H_2O (Hill)
CAS-No.	1303-96-4	
Molar mass	381.32 g/mol	

Hazardous ingredients
Chemical Name (Concentration)
CAS-No.
disodium tetraborate decahydrate (<= 100 %)
1303-96-4

SECTION 4. First aid measures

Description of first-aid measures
Inhalation
After inhalation: fresh air. Call in physician.

Skin contact
After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

Eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
irritant effects
The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation<(>,<)> spasms, CNS disorders, cardiovascular disorders.

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Work under hood. Do not inhale substance/mixture.

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage temperature: no restrictions.

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
disodium tetraborate decahydrate 1303-96-4			
ACGIH	Time Weighted Average (TWA):	2 mg/m³	Form of exposure: Inhalable fraction.
	Short Term Exposure Limit (STEL):	6 mg/m³	Form of exposure: Inhalable fraction.
NIOSH/GUIDE	Recommended exposure limit (REL):	5 mg/m³	
Z1A	Time Weighted Average (TWA):	10 mg/m³	

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance. Work under hood. Do not inhale substance/mixture.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Recommended:

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

Other protective equipment:

protective clothing

Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	crystals
Color	white
Odor	odorless
Odor Threshold	No information available.
pH	9.2 at 47 g/l 68 °F (20 °C)
Melting point	167 °F (75 °C) Elimination of water of crystallization
Boiling point	No information available.
Flash point	not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Vapor pressure	0.213 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Relative density	1.72 g/cm³ at 68 °F (20 °C)
Water solubility	51.4 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	not applicable
Autoignition temperature	No information available.

Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Ignition temperature	not combustible
Bulk density	ca. 750 kg/m³

SECTION 10. Stability and reactivity

Reactivity
See below

Chemical stability
releases water of crystallization when heated.

Possibility of hazardous reactions
Violent reactions possible with:
strong oxidizing agents, Acids, metallic salts

Conditions to avoid
Strong heating.

Incompatible materials
no information available

Hazardous decomposition products
no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Eye contact, Skin contact, Ingestion

Target Organs
Eyes
Skin
Respiratory system

Acute oral toxicity
LD50 rat: 2,660 mg/kg (RTECS)

Acute inhalation toxicity

Symptoms: Irritation symptoms in the respiratory tract.

Acute dermal toxicity
LD50 rabbit: > 2,000 mg/kg
(IUCLID)

Skin irritation
rabbit
Result: No irritation
(IUCLID)

Eye irritation
rabbit
Result: slight irritation
(IUCLID)

Sensitization
Patch test: human
Result: negative
(IUCLID)

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
(IUCLID)

CMR effects
Teratogenicity:
May damage the unborn child.
Reproductive toxicity:
May damage fertility.

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

Absorption via:
Gastrointestinal tract, Mucous membranes
Other information
The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation<(>,<)> spasms, CNS disorders, cardiovascular disorders.
Further data:
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 Carassius auratus (goldfish): 630 mg/l; 72 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 1,085 - 1,402 mg/l; 48 h (IUCLID)

EC5 E.sulcatum: 1.3 mg/l; 72 h (anhydrous substance) (IUCLID)

Toxicity to algae
IC50 Desmodesmus subspicatus (green algae): 158 mg/l; 96 h (anhydrous substance) (IUCLID)

Toxicity to bacteria
EC0 Pseudomonas putida: 15.8 mg/l; 16 h (anhydrous substance) (IUCLID)

Persistence and degradability

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential

Partition coefficient: n-octanol/water
not applicable

Mobility in soil

No information available.

Other adverse effects

Additional ecological information
Biological effects:
Herbicide
Further information on ecology
Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

Not classified as dangerous in the meaning of transport regulations.

Air transport (IATA)

Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

Not classified as dangerous in the meaning of transport regulations.

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Teratogen
Target organ effects
Reproductive hazard

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Chronic Health Hazard

US State Regulations

Massachusetts Right To Know

Ingredients
disodium tetraborate decahydrate

Pennsylvania Right To Know

Ingredients
disodium tetraborate decahydrate

New Jersey Right To Know

Ingredients
disodium tetraborate decahydrate

California Prop 65 Components

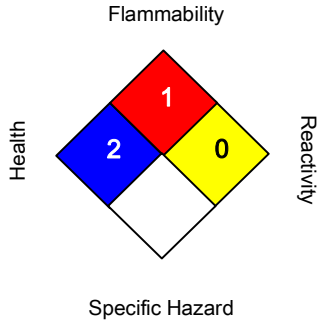
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

TSCA:	On TSCA Inventory
DSL:	All components of this product are on the Canadian DSL list.

SECTION 16. Other information

National Fire Protection Association (U.S.A)



Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H360FD	May damage fertility. May damage the unborn child.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.