Material Safety Data Sheet

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Version 1.3
According to 91/155/EEC

1 - Product and Company Information

Product Name	SODIUM TETRABORATE DECAHYDRATE, A.C.S. REAGENT
Product Number	221333
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
BORAX DECAHYDRATE	1303-96-4	215-540-4	None

Formula	$B_4Na_2O_7.10H_2O$
Molecular Weight	381.37 AMU
Synonyms	Antipyonin * Borascu * Borates, tetra, sodium salt, decahydrate (ACGIH) * Borax (8CI) * Borax decahydrate * Boricin * Disodium tetraborate decahydrate * Gertley borate * Jaikin * Neobor * Sodium biborate decahydrate * Sodium pyroborate decahydrate * Sodium tetraborate decahydrate * Solubor * Three Elephant * Tronabor

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Not hazardous according to Directive 67/548/EC.

4 - First Aid Measures

AFTER INHALATION
If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

AFTER SKIN CONTACT
In case of contact, immediately wash skin with soap and copious amounts of water.

AFTER EYE CONTACT
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

GENERAL INFORMATION
Observation only is required for adult ingestion in the range of 4-8 grams of Borax. For ingestion of larger amounts, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patientspatients only. Hemodialysis should be reserved for massive acute ingestion or patients with renal failure. Boron analysis of urine or blood are only useful for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS
Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.

ENVIRONMENTAL PRECAUTION(S)
Avoid contaminating sewers and waterways with this material. Avoid contaminating water supply.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING
Directions for Safe Handling: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Conditions of Storage: Keep tightly closed.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS
Safety shower and eye bath. Mechanical exhaust required.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	0.5 MG/M3
Poland		NDSCh	2 MG/M3
Poland		NDSP	-

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	2 mg/m3

Remarks: H

EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	5 mg/m3

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level	2 mg/m3

Remarks: H

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	5 mg/m3

Remarks: E

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	5 mg/m3

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Wear dust mask.
Hand Protection: Protective gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Solid Color: White Form: Fine crystals

Property	Value	At Temperature or Pressure
pH	9.2	Concentration: 10 g/l
BP/BP Range	N/A	
MP/MP Range	62 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	N/A	
SG/Density	1.73 g/cm3	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:0.1 M in H2O, 20°C complete, colorless	

10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents, Strong reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Boron oxides, Sodium oxides.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: VZ2275000

ACUTE TOXICITY
LD50
Oral
Rat
*

LD50
Skin
Rabbit
10,000 mg/kg

LDLO
Oral
Infant
1000 mg/kg

LDLO
Oral
Man
709 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Cardiac: Change in rate. Gastrointestinal:Nausea or vomiting.

LD50
Oral
Rat
2660 mg/kg

LD50
Oral
Mouse
2000 mg/kg

LD50
Intraperitoneal
Mouse
2711 MG/KG
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Convulsions or effect on seizure threshold. Behavioral:Muscle contraction or spasticity.

LD50
Intravenous
Mouse
1320 MG/KG

LD50
Oral
Guinea pig
5330 mg/kg

SIGNS AND SYMPTOMS OF EXPOSURE

Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes. Studies with the chemically related boric acid in the rat, mouse and rabbit, at high doses, demonstrate developmental effects on the fetus, including fetal weight loss and minor skeletal variations. The doses administered were many times in excess of those to which humans would normally be exposed. Human epidemiological studies show no increase in pulmonary disease in occupational populations with cronic exposures to boric acid dust and sodium borate dust. A recent epidemiological study under the conditions of normal occupational eposure to borate dusts indicated no effect on fertility.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 70 GM/KG
Route of Application: Oral
Exposure Time: (90D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.

Species: Rat
Dose: 70 GM/KG
Route of Application: Oral
Exposure Time: (90D PRE)
Result: Maternal Effects: Ovaries, fallopian tubes.

Species: Rat
Dose: 37 GM/KG
Route of Application: Oral
Exposure Time: (MULTIGENERATIONS)
Result: Effects on Newborn: Weaning or lactation index (e.g., # alive at weaning per # alive at day 4).

Species: Dog
Dose: 70 GM/KG
Route of Application: Oral
Exposure Time: (26W MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.

12 - Ecological Information

No data available.

ECOTOXICOLOGICAL EFFECTS

Test Type: LC50 Fish
Species: Carassius auratus (Goldfish)

Time: 72 h
Value: 178 mg/l

Test Type: LC50 Fish
Species: Onchorhynchus mykiss (Rainbow trout)
Time: 24 d
Value: 150 mg/l

Test Type: LC50 Fish
Species: Carassius auratus (Goldfish)
Time: 72 h
Value: 630 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48 h
Value: 1,085 - 1,402 mg/l

Test Type: IC50 Algae
Species: other microorganisms
Time: 96 h
Value: 158 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL
Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR
Non-hazardous for road transport.

IMDG
Non-hazardous for sea transport.

IATA
Non-hazardous for air transport.

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES
S-PHRASES: 22 24/25
Do not breathe dust. Avoid contact with skin and eyes.

Not hazardous according to Directive 67/548/EC.

COUNTRY SPECIFIC INFORMATION

Germany
WGK: 1

SWITZERLAND
SWISS POISON CLASS: 5

16 - Other Information

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The

information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

DISCLAIMER

For R&D use only. Not for drug, household or other uses.