



SAFETY DATA SHEET

Creation Date 16-Nov-2010

Revision Date 17-Feb-2014

Revision Number 4

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: Sodium tetraborate decahydrate
Cat No. : 419450010; 419450000; 419450250
Synonyms Sodium borate decahydrate; Borax
CAS-No 1303-96-4
Molecular Formula B₄ Na₂ O₇ · 10 H₂ O
Reach Registration Number --

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

Recommended Use Laboratory chemicals
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company Acros Organics BVBA
Janssen Pharmaceuticaaan 3a
2440 Geel, Belgium
E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

Serious Eye Damage/Eye Irritation
Reproductive Toxicity

Category 2
Category 1B

Environmental hazards

Based on available data, the classification criteria are not met

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Symbol(s) T - Toxic
R-phrase(s) R36 - Irritating to eyes
R60 - May impair fertility
R61 - May cause harm to the unborn child

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

SECTION 2: HAZARDS IDENTIFICATION

2.2. Label elements



Signal Word

Danger

Hazard Statements

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

Precautionary Statements

P201 - Obtain special instructions before use
 P280 - Wear eye protection/ face protection
 P308 + P313 - IF exposed or concerned: Get medical advice/ attention

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008	DSD Classification - 67/548/EEC
Borates, tetra, sodium salts, decahydrate	1303-96-4		100	Eye Irrit. 2 (H319) Repr. 1B (H360FD)	Xi; R36 Repr.Cat.2; R60-61

Reach Registration Number	--
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For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
Ingestion	Do not induce vomiting. Obtain medical attention.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination

4.2. Most important symptoms and effects, both acute and delayed

No information available

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Water spray. Carbon dioxide (CO₂). Dry chemical. chemical foam.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors

Hazardous Combustion Products

Oxides of boron.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid contact with skin and eyes. Do not breathe dust. Avoid contact with clothing. Wash hands before breaks and immediately after handling the product. Ensure adequate ventilation.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

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Exposure limits

List source(s):

UK - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement.

IRE - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Borates, tetra, sodium salts, decahydrate		STEL: 15 mg/m ³ 15 min TWA: 5 mg/m ³ 8 hr	TWA / VME: 5 mg/m ³ (8 heures).	TWA: 2 mg/m ³ 8 uren STEL: 6 mg/m ³ 15 minuten	STEL / VLA-EC: 6 mg/m ³ (15 minutos). TWA / VLA-ED: 2 mg/m ³ (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Borates, tetra, sodium salts, decahydrate			STEL: 6 mg/m ³ 15 minutos TWA: 2 mg/m ³ 8 horas		

Component	Austria	Denmark	Switzerland	Poland	Norway
Borates, tetra, sodium salts, decahydrate		TWA: 2 mg/m ³ 8 timer Skin	MAK: 5 mg/m ³ 8 Stunden	NDSCh: 2 mg/m ³ 15 minutach TWA: 0.5 mg/m ³ 8 godzinach	TWA: 5 mg/m ³ 8 timer STEL: 10 mg/m ³ 15 minutter.

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Borates, tetra, sodium salts, decahydrate	TWA: 5.0 mg/m ³	TWA: 5 mg/m ³ 8 satima.	TWA: 5 mg/m ³ 8 hr.		

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Borates, tetra, sodium salts, decahydrate	Skin notation TWA: 2 mg/m ³ 8 tundides. STEL: 5 mg/m ³ 15 minutites.		TWA: 10 mg/m ³		TWA: 2 mg/m ³ 8 klukkustundum. Skin notation Ceiling: 4 mg/m ³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Borates, tetra, sodium salts, decahydrate		TWA: 2 mg/m ³ Skin notation STEL: 5 mg/m ³			

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Derived No Effect Level (DNEL) See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				
Inhalation	22.3 mg/m ³		22.3 mg/m ³	599.6 mg/kg/day 12.76 mg/m ³

Sodium tetraborate decahydrate

Predicted No Effect Concentration (PNEC)	See values below.
Fresh water	2.02 mg/l
Marine water	2.02 mg/l
Water Intermittent	13.7 mg/l
Microorganisms in sewage treatment	10 mg/l
Soil (Agriculture)	5.4 mg/kg

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers recommendations	-	EN 374	(minimum requirement)
Nitrile rubber				
Neoprene				
PVC				

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced..
Recommended Filter type: Particulates filter conforming to EN 143.

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Particle filtering: EN149:2001
When RPE is used a face piece Fit Test should be conducted.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

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Appearance	White	
Physical State	Powder, Solid.	
Odor	odorless	
Odor Threshold	No data available	
pH	9	5% aq.sol. 20°C
Melting Point/Range	75°C / 167°F	
Softening Point	No data available	
Boiling Point/Range	No information available.	
Flash Point	No information available.	Method - No information available.
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available.	
Explosion Limits	No data available.	
Vapor Pressure	No information available.	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	1.7300	
Bulk Density	No data available	
Water Solubility	60 g/L (20°C)	
Solubility in other solvents	No information available.	
Partition Coefficient (n-octanol/water)	Component Borates, tetra, sodium salts, decahydrate	log Pow - 0.757
Autoignition Temperature	Not applicable	
Decomposition temperature	> 100°C	
Viscosity	Not applicable	Solid
Explosive Properties	Not explosive	
Oxidizing Properties	Not oxidising	

9.2. Other information

Molecular Formula B4 Na2 O7 . 10 H2 O
Molecular Weight 381.36

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions No information available.

10.4. Conditions to avoid

Exposure to air, Incompatible products, Avoid dust formation.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Powdered metal salts.

10.6. Hazardous decomposition products

Oxides of boron.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;

Oral Based on available data, the classification criteria are not met
 Dermal Based on available data, the classification criteria are not met
 Inhalation Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Borates, tetra, sodium salts, decahydrate	5660 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	2.03 mg/l (Rat)

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory Based on available data, the classification criteria are not met
 Skin Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Borates, tetra, sodium salts, decahydrate	OECD Test Guideline 406	guinea pig	-- non-sensitising

(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

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;

Reproductive Effects Category 1B
 Teratogenicity Experiments have shown reproductive toxicity effects on laboratory animals.
 May cause harm to the unborn child.

(h) STOT-single exposure;

Based on available data, the classification criteria are not met

Test species / Sex / Route of exposure mouse / Inhalation

Effective dose NOAEL 0.186 mg/l/4h

(i) STOT-repeated exposure;

Based on available data, the classification criteria are not met

Test species / Duration rat
 Study result NOAEL = 118 mg/kg
 Target Organs None.

(j) aspiration hazard;

Not applicable
 Solid

Other Adverse Effects

The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Symptoms / effects, both acute and delayed

No information available.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Borates, tetra, sodium salts, decahydrate	340 mg/L LC50 96 h 708 mg/l LC50 96 h (Pimephales promelas)	1085 - 1402 mg/L LC50 48 h	2.6-21.8 mg/L EC50 96h 158 mg/L EC50 = 96h	

12.2. Persistence and degradability

Persistence

Soluble in water, Persistence is unlikely, based on information available.

Degradability

Not relevant for inorganic substances.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Borates, tetra, sodium salts, decahydrate	- 0.757	No data available

12.4. Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

12.5. Results of PBT and vPvB assessment

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Ozone Depletion Potential

This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point..

European Waste Catalogue (EWC)

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

Not regulated

14.1. UN number

14.2. UN proper shipping name

14.3. Transport hazard class(es)

14.4. Packing group

ADR

Not regulated

14.1. UN number

14.2. UN proper shipping name

14.3. Transport hazard class(es)

14.4. Packing group

IATA

Not regulated

Sodium tetraborate decahydrate

14.1. UN number**14.2. UN proper shipping name****14.3. Transport hazard class(es)****14.4. Packing group****14.5. Environmental hazards** No hazards identified**14.6. Special precautions for user** No special precautions required**14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable, packaged goods**SECTION 15: REGULATORY INFORMATION****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****International Inventories** X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Borates, tetra, sodium salts, decahydrate	-	-		X	X	-	X	X	X	X	X

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Borates, tetra, sodium salts, decahydrate			SVHC Candidate list - (Toxic to reproduction, Article 57c)

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Borates, tetra, sodium salts, decahydrate	WGK 1	

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

Take note of Dir 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION**Full text of R-phrases referred to under sections 2 and 3**

R36 - Irritating to eyes

R60 - May impair fertility

R61 - May cause harm to the unborn child

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

H319 - Causes serious eye irritation

H360FD - May damage fertility. May damage the unborn child

Legend

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CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit

ACGIH - American Conference of Industrial Hygiene

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japan Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - Volatile Organic Compounds

Key literature references and sources for data

Suppliers safety data sheet,
Chemadvisor - LOLI,
Merck index,
RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date 16-Nov-2010

Revision Date 17-Feb-2014

Revision Summary Update to Format, (M)SDS sections updated, 2, 3, 8, 11, 12, 15, 16.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet