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

1.1. Product identifier

Product Code/Catalogue Number: 984620
SDS Number: D14515_SDS_Total Hardness R1 _EN
Product Name **Total Hardness R1**

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

Recommended Use Laboratory chemicals.

1.3. Details of the supplier of the safety data sheet

Company **Thermo Fisher Scientific Oy**
Ratastie 2,
FI-01620 Vantaa, Finland

Telephone number +358 10 329200
E-mail address system.support.fi@thermofisher.com

1.4. Emergency telephone number

CHEMTREC INTERNATIONAL +1 703-741-5970

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

2.2. Label elements

None required

Hazard Statements
EUH210 - Safety data sheet available on request

2.3. Other hazards

No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Boric acid (H3BO3) (CAS #: 10043-35-3)	0.1 - < 1.0 %	Repr. 1B (H360FD)

Component	Reach Registration Number	
Boric acid (H3BO3)	NA	REACH regulation (EC 1907/2006) article 56 -

		Candidate List of Substance of Very High Concern (SVHC)

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation
Remove to fresh air.

Skin Contact
Wash off with water.

Eye Contact
In case of contact, immediately flush eyes with plenty of water.

Ingestion
Clean mouth with water. Consult a physician if necessary.

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
Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Carbon dioxide (CO2). Foam. Water.

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
No information available.

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
Use personal protective equipment as required.

6.2. Environmental precautions
Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up
Soak up with inert absorbent material.

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
Wear personal protective equipment/face protection.

7.2. Conditions for safe storage, including any incompatibilities
Keep at temperatures between 2° and 8 °C.

7.3. Specific end use(s)
Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
Component Exposure Limits

Component	Finland	European Union	The United Kingdom	Germany
Boric acid (H3BO3)				TWA: 0.5 mg/m³ (8 Stunden). AGW - exposure factor 2 TWA: 10 mg/m³ (8 Stunden). MAK when boric acid and tetraborates are present together, the MAK value is 0.75 mg boron/m³ Höhepunkt: 10 mg/m³

8.2. Exposure controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye Protection Wear safety glasses with side shields (or goggles) (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Disposable gloves	See manufacturers recommendations	-	EN 374	(minimum requirement)

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.

Skin and body protection
Long sleeved clothing

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

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.
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

Appearance	No information available	
Physical State	Liquid	
Odor	Slight	
Odor Threshold	No data available	
pH	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	100 °C	
Flash Point		**Method -** No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	23 hPa	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density		
Bulk Density	No data available	
Water Solubility	Soluble in water	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Boric acid (H3BO3)	-0.757

Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

No data available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
No data available

10.2. Chemical stability
Stable under normal conditions

10.3. Possibility of hazardous reactions
No information available.

10.4. Conditions to avoid

No information available.

10.5. Incompatible materials
Oxidizing agent.

10.6. Hazardous decomposition products
No information available.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information
Harmful if swallowed
(a) acute toxicity;

Oral	Not classified
Dermal	Not classified
Inhalation	Not classified

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Boric acid (H3BO3)	2660 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	Not listed

(b) skin corrosion/irritation;
Not classified.
(c) serious eye damage/irritation;
Not classified.

(d) respiratory or skin sensitization;
Respiratory
Not classified.
Skin
Not classified.

(e) germ cell mutagenicity;
Not classified

(f) carcinogenicity;
Based on available data, the classification criteria are not met

Contains a known or suspected carcinogen

(g) reproductive toxicity;
Based on available data, the classification criteria are not met.

(h) STOT-single exposure;
Not classified.

(i) STOT-repeated exposure;
Not classified.

Target Organs
No information available.

(j) aspiration hazard;

Not classified.

Symptoms / effects,both acute and delayed
No information available

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Boric acid (H3BO3)	Gambusia affinis: LC50: 5600 mg/L/96h	EC50: 115 - 153 mg/L, 48h (Daphnia magna)	-	-

12.2. Persistence and degradability
No information available

12.3. Bioaccumulative potential

Component	log Pow	Bioconcentration factor (BCF)
Boric acid (H3BO3)	-0.757	0

12.4. Mobility in soil
No information available

12.5. Results of PBT and vPvB assessment
No data available for assessment.

12.6. Endocrine disrupting properties
None known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products
Dispose of in accordance with local regulations.

Contaminated Packaging
Dispose of in accordance with local regulations.

SECTION 14: TRANSPORT INFORMATION

	IMDG/IMO	ADR	IATA
	Not regulated	Not regulated	Not regulated
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. Maritime transport in bulk according to IMO instruments

Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

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	IECSC	AICS	KECL
Boric acid (H3BO3)	233-139-2	-		X	X	-	X	X	X	X	KE-03499

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)
Boric acid (H3BO3)		Use restricted. See item 30. (see *http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT* for restriction details)	SVHC Candidate list - 233-139-2 - Toxic for reproduction, Article 57c

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Boric acid (H3BO3)	WGK1	

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

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

H360FD - May damage fertility. May damage the unborn child

Legend

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 - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

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

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

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

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
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 compound)

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
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.

Version	2
Revision Date	14-Dec-2020
Reason for revision	SDS section(s) updated, 1, 3, 8, 15, 16.

Disclaimer

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