SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Trade name: Boraxin**

· **Article number:** AL141

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

· **Application of the substance / the mixture**

· **1.3 Details of the supplier of the safety data sheet**

· **Supplier:**

Bullnheimer & Co. GmbH & Co. KG
Im Tal 12
D-86179 Augsburg Tel. +49(0)821 / 80850-0
Qualified person acc. regulation (EG) No. 1907/2006: info@bullnheimer.de

· **Further information obtainable from:** info@bullnheimer.de

· **1.4 Emergency telephone number:**

Bullnheimer & Co. GmbH & Co KG
Tel.: +49(0)821 /80850-0 Mo. – Th. 08:00 - 16:00. Fr. 08:00 – 13:00-

Outside business hours:
Informationszentrale für Vergiftungen, Mainz
Tel.: +49(0)6131/19240

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**

Acute Tox. 4	H302	Harmful if swallowed.
Acute Tox. 3	H331	Toxic if inhaled.
Repr. 1B	H360FD	May damage fertility. May damage the unborn child.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms**

GHS06 GHS08

· **Signal word** Danger

· **Hazard-determining components of labelling:**

boric acid, disodium salt
hydrofluoric acid

· **Hazard statements**

H302 Harmful if swallowed.
H331 Toxic if inhaled.
H360FD May damage fertility. May damage the unborn child.

· **Precautionary statements**

P201 Obtain special instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

(Contd. on page 2)

(Contd. of page 1)

P308+P313 IF exposed or concerned: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· ***Information concerning particular hazards for human and environment:***
Reproduction and evolution:
· *Studies with different animal types have shown that high doses of Borate influence the reproduction and evolution*
· *of animal species. A study on the effect of borate exposure at work has shown no negative effect on the reproduction rate of the workers. Shortly an epidemiological study and a Peer Review Report of studies in China has shown no negative effect of borate on the human reproduction. [10, 11}*
Potential effects:
Big amounts of borate can cause damage to plants and other species. An output or spillage in the environment should be avoided or reduced..
· ***Signs and symptoms of an exposure (acute effects):***
Causal exposure like swallowing or absorbing of borate in big quantities can cause, vomit, nausea, and later a reaction of the skin like irritations and peeling off by contact with borate.
· ***2.3 Other hazards***
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*

*
SECTION 3: Composition/information on ingredients

· ***3.2 Chemical characterisation: Mixtures***
· ***Description:*** *Neutrale, wäßrige Lösung von Borfluoraten und Phosphaten*

· ***Dangerous components:***

CAS: 1330-43-4 *EINECS: 215-540-4* *Index number: 005-011-00-4* *RTECS: ED4588000* *Reg.nr.: 01-2119490790-32*	*boric acid, disodium salt* *Repr. 1B, H360FD*	*10-25%*
CAS: 7664-38-2 *EINECS: 231-633-2* *Index number: 015-011-00-6* *RTECS: TB 6300000* *Reg.nr.: 01-2119485924-24*	*phosphoric acid* *Met. Corr.1, H290; Skin Corr. 1B, H314*	*< 2.0%*
CAS: 7664-39-3 *EINECS: 231-634-8* *Index number: 009-002-00-6* *RTECS: MW 7875000* *Reg.nr.: 01-2119458860-33*	*hydrofluoric acid* *Acute Tox. 2, H300; Acute Tox. 2, H310; Acute Tox. 1, H330; Met. Corr.1, H290; Skin Corr. 1A, H314*	*< 1.0%*
CAS: 1336-21-6 *EINECS: 215-647-6* *Index number: 007-001-01-2* *RTECS: BO 0875000* *Reg.nr.: 01-2119488876-14*	*Ammonia solution* *Skin Corr. 1B, H314; Aquatic Acute 1, H400; STOT SE 3, H335*	*< 0.5%*

(Contd. on page 3)

(Contd. of page 2)

· **SVHC**	
1330-43-4	boric acid, disodium salt

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Rinse out mouth and then drink plenty of water.
· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
Water
Carbon dioxide
Fire-extinguishing powder
Foam
The product itself does not burn.
Use fire extinguishing methods suitable to surrounding conditions.
· **5.2 Special hazards arising from the substance or mixture**
This material can be decomposed if subjected to heat.
Decomposition or fires can cause vapours can cause irritations or respiratory problems.
· **5.3 Advice for firefighters**
· **Protective equipment:**

Wear a self-contained breathing apparatus.

· **Additional information** Cool endangered containers with water-spray.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
· **6.2 Environmental precautions:**
Trees could be affected if absorbing Borax through the roots. .

(Contd. on page 4)

(Contd. of page 3)

· **6.3 Methods and material for containment and cleaning up:**
Absorb with inert liquid-binding material (sand, diatomite, acid binders or universal binders).
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Use only in well ventilated areas.
Ensure that suitable extractors are available on processing machines
· **Information about fire - and explosion protection:** No special measures required.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
For storage purposes the applicable provisions for storing substances that are hazardous to water in compliance with the water hazard class must be complied with (e.g. WHG (Federal Water Act), VAwS (Ordinance on installations for handling water-polluting substances and on specialist companies), fire water retention directive, etc.).
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
1330-43-4 boric acid, disodium salt	
WEL (Great Britain)	Long-term value: 1 mg/m³

(The substances are under the cut-off value,, exposition in a working situation cannot be excluded.)

· **DNELs**		
1303-96-4 disodium tetraborate decahydrate		
Oral	Long-term exposure - systemic effects	1.5 mg/kg kg/Tag (consumer)
	Short-term exposure - systemic effects	1.5 mg/kg kg/Tag (consumer)
Dermal	Long-term exposure - systemic effects	42,478 mg/kg (workers)
		303.5 mg/kg (consumer) (extern) 1,5 mg/kg kg/Tag (systemisch)
Inhalative	Short-term exposure - local effects	22.3 mg/m³ (workers)
		22.3 mg/m³ (consumer)
	Long-term exposure - systemic effects	12.8 mg/m³ (workers)
		6.5 mg/m³ (consumer)
	Long-term exposure - local effects	22.3 mg/m³ (consumer)

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· **PNECs**

1303-96-4 disodium tetraborate decahydrate	
freshwater	1.35 mg/l als B/l
marine water inter-	1.35 mg/l als B/l
mittent release STP	9.1 mg/l als B/l
sediment (freshwater)	1.75 mg/l als B/l
sediment (marine water)	1.8 mg/kg als B/kg Sediment Trockengewicht
soil	1.8 mg/kg als B/kg Sediment Trockengewicht
	5.4 mg/kg als B/kg Boden Trockengewicht

Source: Chemical safety report for disodium tetraborate decahydrate

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures are to be applied when handling chemicals.
Do not eat, drink, smoke or sniff while working.
Wash hands and/or face before eating, drinking, smoking, using the toilet and at the end of work.
Use skin protection cream for skin protection.
Immediately remove all soiled and contaminated clothing
Wash soiled clothing prior to reusing it.
· **Respiratory protection:** Suitable respiratory protective device recommended.
· **Protection of hands:**

Protective gloves (classified under EN 374).

· **Eye protection:**

Safety glasses (DIN EN 166).

· **Body protection:** Protective work clothing (EN 340).

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**
Form: Liquid
Colour: light pink

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· **Odour:**	odourless
· **pH-value at 20°C:**	~ 7
· **Change in condition**	
Melting point/freezing point:	not applicable
Initial boiling point and boiling range:	not applicable
· **Flash point:**	Not applicable.
· **Density at 20°C:**	1.2 g/cm³
· **Solubility in / Miscibility with water:**	Soluble.
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.
· **10.2 Chemical stability** Stable at environment temperature.
· **10.3 Possibility of hazardous reactions**
Reactions could be possible with reducing agents like metallic Hydride, acetic acid, anhydride or alkaline metals
Can produce hydrogen gas, explosion danger..
· **10.4 Conditions to avoid** Protect from frost and cold, product could crystallization.
· **10.5 Incompatible materials:**
Avoid contact with reducing agents such as: metallhydrids, acetic anhydride or alkali metals.
· **10.6 Hazardous decomposition products:**
In acid range or evaporisation can produce hydrogen Fluoride..

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity**
Harmful if swallowed.
Toxic if inhaled.

· **LD/LC50 values relevant for classification:**		
1330-43-4 boric acid, disodium salt		
Dermal	LD50	> 2000 mg/kg (rabbit)
7664-39-3 hydrofluoric acid		
Inhalative	LC50/1 h	342 mg/l (mouse) 1276 mg/l (rat)

· **Primary irritant effect:**
· **Skin corrosion/irritation** Irritant to skin and mucous membranes.
· **Serious eye damage/irritation** Irritating effect.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **Additional toxicological information:**
· **Development-/reproduction-toxic effects:**
Data for boric acid and disodium salt:
Animal feed studies in which high doses were used, have caused by rats, mouses and dogs have shown effects on the reproduction and reproduction organs of these animals..[2] Studies with boric acid in high doses have shown effects on the fetus development by rats, mouses and rabbits, as well as weight loss and slight alterations of the skeleton.

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The administered dosis have been exceeding the doses which human beings can be normally exposed to. [3, 4, 5] Epidemiological studies have shown no increase of lung deseases in workers which are constantly exposed to boric acid dust or sodium tetraborate dust. Shortly an epidemiological study has shown no effect of boric acid dust on professional workers fertility.

· ***Other information:***
There are no further experimental or experience data or results of conventional calculation methods for this product.
· ***CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)***
· ***Germ cell mutagenicity*** *Based on available data, the classification criteria are not met.*
· ***Carcinogenicity*** *Based on available data, the classification criteria are not met.*
· ***Reproductive toxicity***
May damage fertility. May damage the unborn child.
· ***STOT-single exposure*** *Based on available data, the classification criteria are not met.*
· ***STOT-repeated exposure*** *Based on available data, the classification criteria are not met.*
· ***Aspiration hazard*** *Based on available data, the classification criteria are not met.*

SECTION 12: Ecological information

· ***12.1 Toxicity***
· ***Aquatic toxicity:***

· ***Acute fish toxicity:***	
7664-39-3 hydrofluoric acid	
LC50/96 h (static)	*164.5 mg/l (Oncorhynchus mykiss (rainbow trout))*
1303-96-4 disodium tetraborate decahydrate	
LC50/96 h	*79.7 mg/l (Pimephales promelas (fathead minnow)) (Soucek et al., 2010)* *als B/l oder 703 mg Dinatriumtetraborat-Decahydrat/l*

[8]

· ***Acute daphnia toxicity:***	
1303-96-4 disodium tetraborate decahydrate	
EC50 (48 h)	*133 mg/l (Daphnia magna (water flea)) (Gersich, 1984a)* *als B/l oder 1,173 mg Dinatriumtetraborat-Decahydrat/l*

[7]

· ***Algae toxicity:***	
1303-96-4 disodium tetraborate decahydrate	
EC50 (72 h)	*40 mg/l (Pseudokirchneriella subcapitata) (Hansveit und Oldersma, 2000)* *Biomasse als B/l oder 353 mg Dinatriumtetraborat-Decahydrat/l.*

[6]

· ***12.2 Persistence and degradability***
Boron is a normal substance in the nature, boric acid decomposed itself in the nature to elemental boron.
· ***12.3 Bioaccumulative potential*** *No further relevant information available.*
· ***12.4 Mobility in soil*** *No further relevant information available.*
· ***Ecotoxical effects:***
· ***Remark:***
Boron is to be found in seewater, in an average concentration of 5 mg B/l and in freshwater in a concentration of 1 mg B/l or even less. In deluted watery solutions mostly dissociated boric acid can be found.
Boric acid is a good nutrient for the growth of plants, though an excessive quantity can damage

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Boric acid sensible plants. It is necessary to minimize the release of boric acid in the environement.

· **Additional ecological information:**

· **General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation** Disposal according to the public regulatory rules.

· **European waste catalogue**

The indicated EWC-waste disposal key number refers to the product itself and not to processed products and mixtures. Depending on the level of contamination and origin other waste disposal key numbers may be required. In case of doubts consult the local waste disposers.

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· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, ADN, IMDG, IATA**	Void
· **14.2 UN proper shipping name**	
· **ADR**	Void
· **ADN, IMDG, IATA**	Void
· **14.3 Transport hazard class(es)**	
· **ADR, ADN, IMDG, IATA**	
· **Class**	Void
· **14.4 Packing group**	
· **ADR, ADN, IMDG, IATA**	Void
· **14.5 Environmental hazards:**	Not applicable.
· **14.6 Special precautions for user**	Not applicable.
· **14.7 Transport in bulk according to Anne x II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	Not dangerous according to the specifications.
· **UN "Model Regulation":**	Void

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SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
Borats are safe for normal and professiona use, they are important nutrients for the growth of plants.
Researches have shown a positive influence on human beings health.. The CLP-Classification bases only on animal studies, during these studies the animals have been exposed for long periods to high doses of boric acid.
The administered dosis have been exceeding the doses which human beings can be normally exposed to.
Therefore the European Commission have taken a precautionary decision.

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 50 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t
· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **National regulations:**

· **Other regulations, limitations and prohibitive regulations**
Besonders besorgniserregender Stoff (SVHC) gemäß REACH, Artikel 57
Clean Air Act (Montreal Protocol)
Boric acid is not classified as ozone depleting substance of Class I or II and contains none of such substances.
EU-Verordnung REACH
Disodium tetraborate has been listed according to SVHC (substance of very high concern) in the Candidate List according to Annex XIV of 1907/2006 REACH.. (18.06.2010- ED/30/2010).

· **Directive 96/82/EC on the control of major-accident hazards involving dangerous substances**	
1330-43-4	boric acid, disodium salt

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
Do not represent a warranty of characteristics of the described product(s) in a legal sense.
The material safety data sheet is based on data that were accurate as of the date of its preparation. Despite the measures taken by us it might be possible that the data are not up to date or do not correspond to special situations. We are not liable for possible damages or injuries resulting from an inappropriate use, from errors occurring after a correct use or from hazards which are inherent to the product.

· **Relevant phrases**
Full wording of the R-phrases, presented in short form in this safety data sheet. The labelling of the product is indicated in section 15.
H290 May be corrosive to metals.
H300 Fatal if swallowed.
H310 Fatal in contact with skin.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.
H360FD May damage fertility. May damage the unborn child.
H400 Very toxic to aquatic life.

(Contd. on page 10)

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· ***Training hints***

Regular training of the employees involved in the transport of dangerous goods (acc Chapter 1.3 ADR)

· ***Department issuing SDS:***
Department GGB
Sch
· ***Contact:***
· ***Abbreviations and acronyms:***
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 1: Acute toxicity – Category 1
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Repr. 1B: Reproductive toxicity – Category 1B
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
· ***Sources***
This information is based on the information from preliminary suppliers.

[2] Weir R J, Fisher R S, Toxicol. Appl. Pharmacol. (1972), 23, 351-364

[3] National Toxicology Program (NTP) Technical Report Series No. TR324, NTH Publication No. 88-2580 (1987), PB88 213475/XAB

[4] Fail et al., Fund. Appl. Toxicol. (1991) 17, 225-239

[5] Heindel et al., Fund. Appl. Toxicol. (1992) 18, 266-277

[6] Hansveit and Oldersma, 2000; TNO Nutrition and Food Research Institute, Bericht Nr. V99.157.

[7] Gersich, FM (1984a). Environ.Toxicol.Chem., 3 1, 89-94 (1984)

[8] Soucek et al., 2010. Illinois Natural History Survey, University og Illinois.

Für allgemeine Informationen über die Toxikologie von Boraten lesen Sie bitte ECETOC Technical Peport No. 63 (1995); Patty's Industrial Hygiene and Toxicology, 4th Edition Vol. II, (1994) Chap. 42, 'Boron'
· **** Data compared to the previous version altered.***
This safety data sheet replaces all former versions for this product. Modifications of the previous version are marked by "".*