SAFETY DATA SHEET

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

1.1 Product identifier

Product name : ***Liquibor*® Plus**

Chemical name : Reaction products of monoethanolamine and boric acid (1:3)

EC number : Not available.

REACH Registration number

Registration number	Legal entity
01-2119557854-26-0002	Borax Français S.A.S.

CAS number : 10377-81-8

Product type : Liquid.

Other means of identification : 2-aminoethanol, monoester with boric acid

701-024-0: List number allocated by ECHA, related to the Chemical name. It has no legal significance.

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

Material uses : Refer to the table "Identified uses" below.

Identified uses
Importing and packaging Adhesives (Process regulator (other than polymerisation or vulcanization processes)) Agriculture (Fertilisers) Industrial fluids (Corrosion inhibitors and anti-scaling agents, Lubricants and lubricant additives) *A complete list of uses is provided in the introduction to Annex - Exposure Scenarios*

Uses advised against

Not applicable.

1.3 Details of the supplier of the safety data sheet

Borax Europe Limited
6 St. James's Square
London, SW1Y 4AD
United Kingdom
T: +44 (0)20 7781 2000

Borax Francais S.A.S.
Usine/Siège Social
Route de Bourbourg
59411 Coudekerque-Branche
Cedex, France
T: +33 3 28 29 28 30

Rio Tinto Iron & Titanium GmbH
Alfred-Herrhausen-Allee 3-5,
65760 Eschborn
Germany
T: +49 6196 96000

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

e-mail address of person responsible for this SDS : rtb.sds@riotinto.com

1.4 Emergency telephone number

Telephone number : EU States Emergency Helpdesks: http://echa.europa.eu/help/nationalhelp_contact_en.asp

Telephone number : +44 (0) 1235 239 670 (Rio Tinto Borates)
For advice on chemical emergencies, spillages, fires or First Aid.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : UVCB

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Repr. 1B, H360FD

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : May damage fertility. May damage the unborn child.

Precautionary statements

Prevention : Do not handle until all safety precautions have been read and understood.

Response : IF exposed or concerned: Get medical advice/attention.

Storage : Not applicable.

Disposal : Dispose of contents/container in accordance with local regulation.

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

SECTION 2: Hazards identification

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

PBT	P	B	T	vPvB	vP	vB
Not applicable. (Inorganic substance.)	No	No	Yes	Not applicable. (Inorganic substance.)	No	No

Product meets the criteria for endocrine disrupting properties according to Regulation (EC) No. 1907/2006. : Not applicable. Based on the available data, the classification criteria are not met.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.1 Substances : UVCB

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Reaction products of monoethanolamine and boric acid (1:3)	REACH #: 01-2119557854-26 CAS: 10377-81-8	>99	Repr. 1B, H360FD **See Section 16 for the full text of the H statements declared above.**	-	[1]

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

[*] Substance
[1] Constituent

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Use eye wash fountain or fresh water to cleanse the eye. If irritation persists for more than 30 minutes, seek medical attention.

Inhalation : If symptoms such as nose or throat irritation are observed, remove to fresh air.

Skin contact : Wash with plenty of soap and water. Remove contaminated clothing and wash it before reuse.

Ingestion : Wash out mouth thoroughly with water and give plenty of water to drink. Seek medical attention

Protection of first-aiders : No special protective clothing is required

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.

SECTION 4: First aid measures

Ingestion : Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Supportive care only is required for adult ingestion of less than a few grams of the product. For ingestion of larger amounts, maintain fluid and electrolyte balance and maintain adequate kidney function. Gastric lavage is only recommended for heavily exposed, symptomatic patients in whom emesis has not emptied the stomach. Hemodialysis should be reserved for patients with massive acute absorption, especially for patients with compromised renal function. Boron analyses of urine or blood are only useful for verifying exposure and are not useful for evaluating severity of poisoning or as a guide in treatment.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : None. The product is not flammable, combustible or explosive. May evolve toxic fumes in a fire.

Hazardous combustion products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

5.3 Advice for firefighters

Special protective actions for fire-fighters : None.

Special protective equipment for fire-fighters : Not applicable.

Additional information : Not explosive.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

SECTION 6: Accidental release measures

6.2 Environmental precautions : Large amounts of this product can be harmful to plants and other species. Therefore, releases to the environment should be minimized. Avoid contamination of water bodies during clean up and disposal. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns the boron value to its normal environmental background level .

6.3 Methods and material for containment and cleaning up

Small spill : Soak up with inert absorbent material, transfer to container and arrange removal by disposal company.

Large spill : Liquids should be contained with sand or earth and both liquid and solid transferred to salvage containers. Avoid contamination of water bodies during clean up and disposal.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Handle in accordance with good industrial hygiene and safety practice. Avoid spills.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

No special handling precautions are required, but dry, indoor storage is recommended. Store in a dry, cool and well-ventilated area. Cover to minimise evaporation.

Storage temperature: Ambient temperature
Storage pressure: Ambient pressure

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Biological exposure indices

No exposure indices known.

SECTION 8: Exposure controls/personal protection

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Result
2-aminoethanol, monoester with boric acid	**DNEL - Workers - Long term - Inhalation** 1.23 mg/m³ Effects: Systemic **DNEL - Workers - Long term - Dermal** 70 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Inhalation** 0.218 mg/m³ Effects: Systemic **DNEL - General population - Long term - Dermal** 25 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Oral** 0.125 mg/kg bw/day Effects: Systemic

PNECs

Product/ingredient name	Result
2-aminoethanol, monoester with boric acid	**Fresh water** 0.1 mg/l **Marine water** 10 µg/l **Fresh water sediment** 0.542 mg/kg Sediment dw **Marine water sediment** 54.2 mg/kg Sediment dw **Sewage Treatment Plant** 10 mg/l **Soil** 49.7 mg/kg Soil dw **Secondary Poisoning** 66.7 mg/kg Food (oral)

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

SECTION 8: Exposure controls/personal protection

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: Eye protection according to CEN166:2001 is recommended.

Skin protection

Hand protection : Gloves (nitrile or neoprene) (CEN374:2016).

Body protection : No special protective clothing is required.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Self-contained breathing apparatus when vapour levels approach or exceed permitted exposure levels (CEN 140:1998).

Environmental exposure controls : Limiting releases from site:

Water Emissions: Storage should be sheltered from precipitation. Avoid spillage into water and cover drains. Removal from water can only be accomplished by very specific treatment technologies including ion exchange resins, reverse osmosis etc. Removal efficiency is dependent upon a number of factors and will vary from 40 to 90%. Much of the technology is currently not appropriate to high volume or mixed waste streams. Boron is not removed in considerable amounts in conventional STP. If sites discharge to a municipal STP the concentration of boron should not exceed the PNEC in the municipal STP

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid. [Slight Viscous liquid.]

Colour : Pale colour. Yellow.

Odour : Ammoniacal. [Slight]

Odour threshold : Not available.

Melting point/freezing point : Not applicable. [liquid]

Boiling point or initial boiling point and boiling range : ca.100 °C at 1.01E5 Pa

Flammability : Non-flammable. The product is not flammable, combustible or explosive.

Lower and upper explosion limit : Not available.

Flash point : No flashpoint up to 100°C

Auto-ignition temperature : Not applicable. [Not self-heating.]

Decomposition temperature : Not available.

pH : 8.88 [Conc. (% w/w): 5%] ; 9.05 (1.0% solution)

SECTION 9: Physical and chemical properties

Viscosity	:	Dynamic (room temperature): Not available. Kinematic (room temperature): 15 mm^2/s Kinematic (40°C): Not available.
Solubility in water	:	1470 mg/l [at 20°C]
Partition coefficient n-octanol/ water (log Pow)	:	-0.9 at 19.7 °C
Vapour pressure	:	1.3E-8 Pa at 20°C
Relative density	:	1.355 [at 20°C]
Bulk density	:	Not available.
Granulometry	:	Not applicable. (Liquid)
Relative vapour density	:	Not available.
Explosive properties	:	Not explosive.
Oxidising properties	:	Not oxidising.
Particle characteristics		
Median particle size	:	Not applicable.

9.2 Other information

Not applicable.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	Possible release of carbon monoxide/carbon dioxide.
10.2 Chemical stability	:	Under ambient temperatures, the product is stable. The product may concentrate by evaporation.
10.3 Possibility of hazardous reactions	:	None known.
10.4 Conditions to avoid	:	Elevated temperature
10.5 Incompatible materials	:	The product may be incompatible with aluminium, galvanised iron, copper and its alloys, oxidising agents, acids, alkalis, acid chlorides and acid anhydrides.
10.6 Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced. May evolve toxic fumes in a fire.

SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Result
2-aminoethanol, monoester with boric acid	**Rat - Oral - LD50** >2000 mg/kg **Rat - Dermal - LD50** >2000 mg/kg

Conclusion/Summary [Product] : Based on the available data, the classification criteria are not met.

Acute toxicity estimates

N/A

SECTION 11: Toxicological information

Skin corrosion/irritation

Product/ingredient name	Result
2-aminoethanol, monoester with boric acid	**New Zealand White Rabbit - Skin - No irritation.** Amount/concentration applied: 0.5 ml

Conclusion/Summary [Product] : Non-irritant to skin. Based on the available data, the classification criteria are not met.

Serious eye damage/eye irritation

Product/ingredient name	Result
2-aminoethanol, monoester with boric acid	**New Zealand White Rabbit - Eyes - No irritation.** Amount/concentration applied: 0.1 ml

Conclusion/Summary [Product] : Non-irritating to the eyes. Based on the available data, the classification criteria are not met.

Respiratory corrosion/irritation

Not available.

Conclusion/Summary [Product] : Not available.

Respiratory or skin sensitization

Product/ingredient name	Result
2-aminoethanol, monoester with boric acid	**Guinea pig - skin** Result: Not sensitizing

Skin

Conclusion/Summary [Product] : Not a skin sensitiser. Based on the available data, the classification criteria are not met.

Respiratory

Conclusion/Summary [Product] : No respiratory sensitisation studies have been conducted. Based on the available data, the classification criteria are not met.

Germ cell mutagenicity

Product/ingredient name	Result
2-aminoethanol, monoester with boric acid	**In vitro - Mammalian-Human** Result: Negative

Conclusion/Summary [Product] : Not mutagenic. Based on the available data, the classification criteria are not met.

Carcinogenicity

Not available.

Conclusion/Summary [Product] : No data available on the product itself.

Reproductive toxicity

Product/ingredient name	Result

SECTION 11: Toxicological information

2-aminoethanol, monoester with boric acid	**Rat - Oral - NOAEL Embryo fetal survival** OECD 414 225 mg/kg bw/day **Rat - Oral - NOAEL - Embryo fetal growth** OECD 414 75 mg/kg bw/day **Rat - Oral - NOAEL for testicular findings** ≤300 mg/kg bw/day [4 weeks]

Conclusion/Summary [Product] : Due to malformations observed in a Prenatal Developmental Toxicity Study (OECD 414) the substance has been classified as a reproductive toxicant with a classification of category 1B, H360FD (May damage fertility. May damage the unborn child). NOAEL in rats for developmental effects on the foetus including (but not limited to) major cranial abnormalities like Agnathia, Brachygnathia or Cyclopia is considered to be 25 mg/kg body weight/day (Oral feeding study).

Specific target organ toxicity (single exposure)

Product/ingredient name	Result
Based on the available data, the classification criteria are not met.	

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Result
Based on the available data, the classification criteria are not met.	

Aspiration hazard

Product/ingredient name	Result
No data available on the product itself. Since, the product is an aqueous complex substance, the aspiration hazard potential is considered low. No classification for aspiration hazard is proposed.	

Information on likely routes of exposure

Routes of entry anticipated: Dermal. **Product is not intended for ingestion.**

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.

Ingestion : This product is not intended for ingestion. Small amounts (e.g., a teaspoon) swallowed accidentally are not likely to cause effects; swallowing amounts larger than that may cause gastrointestinal symptoms. Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

SECTION 11: Toxicological information

Skin contact : Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.

Ingestion : Symptoms of accidental over-exposure to high doses of inorganic borate salts have been associated with ingestion or absorption through large areas of severely damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary [Product] : Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : May damage fertility. May damage the unborn child.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not applicable.

Conclusion/Summary [Product] : Based on the available data, the classification criteria are not met.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result
2-aminoethanol, monoester with boric acid	**Acute - LC50 - Fresh water** OECD 203 [Fish] *Cyprinus carpio* 617 mg/l [96 hours] **Chronic - NOEC - Fresh water** OECD 210 [Fish] *Pimephales promelas* 10 mg/l [33 days] **Acute - EC50 - Fresh water** OECD 202 [Invertebrate] *Daphnia magna* 496 mg/l [48 hours] **Chronic - EC50 - Fresh water** OECD 211 [Invertebrate]

SECTION 12: Ecological information

Daphnia magna
11 mg/l [21 days]

Acute - EC50 - Fresh water
OECD 201 [Freshwater Alga and Cyanobacteria]
Pseudokirchneriella subcapitata
67 mg/l [72 hours]

Acute - NOEC - Fresh water
OECD 201 [Freshwater Alga and Cyanobacteria]
Pseudokirchneriella subcapitata
18 mg/l [72 hours]

Conclusion/Summary [Product] : Based on available data, the classification criteria are not met.

12.2 Persistence and degradability

Product/ingredient name	Result
2-aminoethanol, monoester with boric acid	78% [21 days]

Conclusion/Summary [Product] : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
2-aminoethanol, monoester with boric acid	-0.9	-	Low

12.4 Mobility in soil

Soil/water partition coefficient

Product/ingredient name	logKoc	Koc
2-aminoethanol, monoester with boric acid	1.26	18.2

Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
2-aminoethanol, monoester with boric acid	Not applicable. (Inorganic substance.)	No	No	Yes	Not applicable. (Inorganic substance.)	No	Yes

Mobility : The product is soluble in water and is leachable through normal soil. Adsorption to soils or sediments is insignificant.

Conclusion/Summary : The product does not meet the criteria to be considered as a PMT or vPvM.

12.5 Results of PBT and vPvB assessment

Regulation (EC) No. 1907/2006 [REACH]

According to the results of its assessment, this substance is not a PBT or a vPvB.

Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
2-aminoethanol, monoester with boric acid	Not applicable. (Inorganic substance.)	No	No	Yes	Not applicable. (Inorganic substance.)	No	No

Conclusion/Summary Regulation (EC) No. 1272/2008 [CLP] : The product does not meet the criteria to be considered as a PBT or vPvB.

SECTION 12: Ecological information

12.6 Endocrine disrupting properties

Not applicable.

Conclusion/Summary [Product] : Based on the available data, the classification criteria are not met.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : Care should be taken when handling emptied containers that have not been cleaned or rinsed out.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.

14.6 Special precautions for user : Not applicable.

14.7 Maritime transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Product/ingredient name	%	Designation [Usage]
Not applicable.		

Labelling : Not applicable.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Directive 92/85/EEC (Pregnant Workers Directive): Observe employment restrictions for expectant or nursing mothers

Industrial emissions (integrated pollution prevention and control) - Water : Not listed

Explosive precursors : Not applicable.

Ozone depleting substances (EU 2024/590)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

National regulations

Technical instruction on air quality control (TA Luft)

Number [Class]	Description	%
5.2.5	Organic substances	100

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

SECTION 15: Regulatory information

Inventory list

Australia	:	Not determined.
Canada	:	All components are listed or exempted.
China	:	All components are listed or exempted.
Eurasian Economic Union	:	**Russian Federation inventory**: All components are listed or exempted.
Japan	:	**Japan inventory (CSCL)**: Not determined. **Japan inventory (ISHL)**: Not determined.
New Zealand	:	All components are listed or exempted.
Philippines	:	Not determined.
Republic of Korea	:	All components are listed or exempted.
Taiwan	:	All components are listed or exempted.
Thailand	:	All components are listed or exempted.
Turkey	:	Not determined.
United States	:	All components are active or exempted.
Viet Nam	:	All components are listed or exempted.

15.2 Chemical safety assessment : Complete.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

Key literature references and sources for data : For general information on the toxicology of borates see Patty's Toxicology, 6th Edition Vol. I, (2012) Chap. 23, 'Boron'.

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Repr. 1B, H360FD	Expert judgment

Full text of abbreviated H statements

H360FD	May damage fertility. May damage the unborn child.

Full text of classifications [CLP/GHS]

Repr. 1B	REPRODUCTIVE TOXICITY - Category 1B

Additional information : Restricted to professional users.
Keep out of reach of children.
Do not ingest.
Refer to safety data sheet.
Not for use in drugs, biocides or for food preservation
Use only as directed.

SECTION 16: Other information

Date of issue/ Date of revision	:	06/04/2026
Date of previous issue	:	04/12/2025
Version	:	1.02

Europe / 4.14 / EN-GB

Notice to reader

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Market Sector	Identified Use	Exposure Scenario (ES)		Sector of Use (SU)	Article Category (AC)	Product Category (PC)	Process Category (PROC)	Env. Release Category (ERC)	Subsequent Service Life
-	M-1	ES 1	Manufacture of Reaction products of monoethanolamine and boric acid 1:3 ((EC 701-024-0) (MEA Polyborate 1:3)	-	-	-	1, 2, 4, 8b, 9, 15, 28	1	-
Lubricants, Greases and Metal Working Fluids	F-1	ES 2	ATIEL-ATC Group A [i] Industrial formulation of lubricant additives, lubricants and greases. Includes material transfers, mixing, large and small scale packing, sampling, maintenance and associated laboratory activities.	-	-	0: Various PCs	1, 2, 3, 4, 5, 8a, 8b, 9, 15, 28	2	-
Lubricants, Greases and Metal Working Fluids	F-2	ES 3	ATIEL-ATC Group E [i] (Industrial) Handling and dilution of metalworking fluid concentrates	-	-	0: Various PCs	1, 2, 5, 8b, 28	2	-
Lubricants, Greases and Metal Working Fluids	IW-1	ES 4	ATIEL-ATC Group C [i] Industrial use of lubricants and greases in open systems	0: Various SUs	-	24	1, 2, 7, 8b, 9, 10, 13, 28	4	-
Lubricants, Greases and Metal Working Fluids	IW-2	ES 5	ATIEL-ATC Group F [i] Industrial Use of lubricants in high energy open processes	0: Various SUs	-	24	1, 2, 8b, 17, 18, 28	4	-
Lubricants, Greases and Metal Working Fluids	PW-1	ES 6	ATIEL-ATC Group C [p] Professional Use of lubricants and greases in open systems	15, 17	-	24	1, 2, 8a, 10, 11, 13	8a, 8d	-
Lubricants, Greases and Metal Working Fluids	PW-2	ES 7	ATIEL-ATC Group F [p] Professional use of lubricants in high energy open processes	15, 17	-	24, 25	1, 2, 8a, 17, 18	8a	-
Lubricants, Greases and Metal Working Fluids	C-1	ES 8	ATIEL-ATC Group C [c] Use of lubricants and greases in open systems. Application of lubricant to work pieces or equipment by dipping, brushing or spraying (without exposure to heat), e.g. mould releases, corrosion protection, slideways	-	-	24	-	8a, 8d	-
Adhesives	F-3	ES 9	Formulation: Production of Adhesives (General Case)	-	-	1	3, 4, 5, 8b, 9, 28	2	-

Market Sector	Identified Use	Exposure Scenario (ES)		Sector of Use (SU)	Article Category (AC)	Product Category (PC)	Process Category (PROC)	Env. Release Category (ERC)	Subsequent Service Life
Adhesives	IW-3	ES 10	Industrial use of adhesives - Starch Glue Adhesives	6a, 6b, 16, 17, 18, 19	-	1	2, 8b, 13, 28	5	ES14, ES15, ES16
Adhesives	IW-4	ES 11	Industrial use of adhesives (General Use)	6a, 6b, 16, 17, 18, 19	-	1	2, 8b, 10, 13, 28	5	ES14, ES15, ES16
Adhesives	PW-3	ES 12	Professional use of boron containing adhesives	18, 19	-	1	10	8c, 8f	ES15, ES16
Adhesives	C-2	ES 13	Consumer use of boron containing adhesives	-	-	1	-	8c, 8f	ES16
Adhesives	SL-1	ES 14	Industrial service life of adhesed articles	-	2, 8, 11	-	21	12a, 12c	-
Adhesives	SL-2	ES 15	Professional service life of adhesed articles	-	2, 8, 11	-	21	10a, 11a	-
Adhesives	SL-3	ES 16	Consumer service life of adhesed articles	-	2, 8, 11	-	-	10a, 11a	-
Agriculture	F-4	ES 17	Formulation of fertilizer products	-	-	12	1, 2, 3, 4, 5, 8b, 9, 14, 15, 28	2	-
Agriculture	F-5	ES 18	Formulation by incorporating fertilizers onto or into a matrix	-	-	12	2, 3, 4, 5, 8b, 9, 13, 15, 28	3	-
Agriculture	PW -4	ES 19	Professional use of micronutrient fertilizers	1	-	12	2, 3, 5, 8a, 9, 11, 15, 28	8b, 8e	-