

Vulcan Code 3462
rec 8-20-2018

1-00-E

63569

Safety Data Sheet Zinc Borate



Section 1 - IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY	
1.1 Identification of the substance	
• Substance Name	: Zinc Borate
• EC#	: 235-804-2
• CAS#	: 138265-88-0
• Trade Names	: As per the client
• Chemical Formula	: $2ZnO \cdot 3B_2O_3 \cdot 3.5H_2O$
• Structure:	: Not available
1.2 Use of the Substance/Mixture:	
• Flux agents for casting	
• Used as a laboratory chemical	
• Used as a flame retardant	
• Manufacturer Details:	Rubamin Limited Synergy House, Subhanpura. Vadodara - 390 023, India Ph. : 0091 265 2282078-82 Fax : 0091 265 2282077
• Only Representative Details:	Momaja s.r.o. ELC GROUP Krajkovska 9, Prague 1, 11000 Phone : +420 22 491 0000 Fax : +420 22 491 0671
1.4 Emergency Telephone:	
• Emergency Telephone & Contact	Ms. Suman Dhar Ph. : 0091 9925007156 Fax : 0091 265 2282077 suman.dhar@rubamin.com
Section 2 - HAZARDS IDENTIFICATION	
2.1 Classification of substance as per CLP	
2.1.1 Classification according to Regulation (EC) # 1272/2008 (CLP/GHS)	
• Hazard Class and Category Code(s)	Aquatic acute, Category 1 Aquatic chronic, Category 1 Reproductive toxicity, Category 2
• Hazard statement Code(s)	H400 H410



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Safety Data Sheet

Zinc Borate

	H361				
2.1.2 Classification according to Directive 67/548/EEC(DSD)					
N; R50 Dangerous for the environment; Very toxic to aquatic organisms.					
2.2 Labelling:					
2.2.1 Labeling according to Regulation (EC) No 1272/2008 (CLP/GHS)					
<ul style="list-style-type: none"> • Hazard Pictogram/ Signal Word: 	GHS09: environment GHS08: health hazard Signal Word : Warning <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Environment </div> <div style="text-align: center;">  Health hazard </div> </div>				
<ul style="list-style-type: none"> • Hazard Statements 	H400: Very toxic to aquatic life H410: Very toxic to aquatic life with long lasting effects H361: Suspected of damaging fertility or the unborn child.				
<ul style="list-style-type: none"> • Precautionary Statements 	P273: Avoid release to the environment P391: Collect spillage P501: Dispose of contents/container safely according to local/national waste legislation				
2.2.2 Labeling according to Directive 67/548/EEC (DSD)					
<ul style="list-style-type: none"> • R-phrases : 	R50 - Very toxic to aquatic organisms				
<ul style="list-style-type: none"> • S-phrases : 	S60 - this material and its container must be disposed of as hazardous waste S61 - avoid release to the environment. refer to special instructions/safety data sheets				
2.3. Other hazards					
Not known					
Section 3 - COMPOSITION/INFORMATION ON INGREDIENTS					
Constituent	CAS No.	EC No.	Typical concentration	Concentration range	Remarks
zinc oxide	1314-13-2	215-222-5	38.0 %	>37.5 % <= 38.0 %	None
diboron trioxide	1303-86-2	215-125-8	47.0 %	>46.5% <=47.0 %	None
Water	7732-18-5	231-791-2	14.0 %	>13.5 % <= 14.0 %	None

Safety Data Sheet

Zinc Borate

Impurity	CAS No.	EC No.	Typical concentration	Concentration range	Remarks
Related metallic impurities	.	.	1.0 %	>0.95<= 1.0 %	None
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.				
• Skin Contact :	Not found to be skin irritant				
• Inhalation :	If symptoms such as nose or throat irritation are observed, remove person to fresh air..				
• Ingestion :	Swallowing small quantities (one teaspoon) will cause no harm to healthy adults. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention				
4.2. Most important symptoms and effects, both acute and delayed					
Symptoms of accidental over-exposure to might include nausea, vomiting and diarrhea, with delayed effects of skin redness and peeling. These symptoms have been associated with the accidental overexposure to the chemically related substance boric acid					
4.3. Indication of any immediate medical attention and special treatment needed					
Observation only is required for adult ingestion of less than a few grams of Zinc Borate. Boron analyses of urine or blood are only useful for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment					
Section 5 - FIRE-FIGHTING MEASURES					
5.1. Extinguishing media: Any fire extinguishing media may be used on nearby fires.					
5.2. Special hazards arising from the substance or mixture					
None, because Zinc Borate is not flammable, combustible or explosive. The product is itself a flame retardant					
• Flammability of the Product	: Non flammable solid				
• Auto-Ignition Temperature	: No data available				
• Flash Points	: No information				
• Flammable Limits	: No data available				
• Products of Combustion	: Noncombustible and non-explosive				
5.3. Advice for fire-fighters					
Firefighters should wear full protective clothing incase of fire					

Safety Data Sheet

Zinc Borate

Section 6 - ACCIDENTAL RELEASE MEASURES	
6.1. Personal precautions, protective equipment and emergency procedures	
<ul style="list-style-type: none"> • Personal Protective Equipment 	Handle in accordance with good industrial hygiene and safety Practice. Wear suitable protective clothing
<ul style="list-style-type: none"> • Skin Protection 	Wear suitable gloves and wash hands after work.
<ul style="list-style-type: none"> • Respiratory Protection 	Wear respiratory protection. Avoid breathing vapors. Ensure adequate ventilation. Where airborne concentrations are expected to exceed exposure limits, respirators for dust should be used.
<ul style="list-style-type: none"> • Work Practices 	Avoid dust formation. Wear suitable gloves and eye/face protection dust and Zn in dust needs to be measured in the workplace air (static or individual) according to national regulations. Special care for the general establishment and maintenance of a clean working environment by e.g. Cleaning of process equipment and workshop. Storage of packaged Zn product in dedicated zones.
6.2. Environmental precautions:	
Zinc Borate is a sparingly soluble white powder that may cause damage to trees or vegetation by root absorption.	
6.3. Methods and material for containment and cleaning:	
<ul style="list-style-type: none"> • Spillage: 	Land spill: Vacuum, shovel or sweep up Zinc Borate and place in containers for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during cleanup and disposal. Personal protective equipment is not needed to cleanup land spills.
	Spillage into water: Where possible, remove any intact containers from the water. 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 and zinc values to their normal environmental background levels. Zinc Borate is a non-hazardous waste when spilled or disposed of, as defined in the Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261)
Section 7 - HANDLING AND STORAGE	
7.1 Precautions for safe handling	
<ul style="list-style-type: none"> • No special handling precautions are required. • Good housekeeping procedures should be followed to minimise dust generation. • Do not breathe gas/fumes/ vapour/spray 	

Safety Data Sheet

Zinc Borate

<ul style="list-style-type: none"> Avoid contact with skin and eyes Wash thoroughly with soap and water after handling 	
7.2 Conditions for safe storage:	
<ul style="list-style-type: none"> Dry, indoor storage is recommended. Store in roofed places at room temperature. Keep container tightly closed in a dry and well-ventilated place Special sensitivity Moisture (caking) 	
7.3 Specific end use(s):	
<ul style="list-style-type: none"> As mentioned in Section 1.2 	
Section 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION	
8.1 Control parameters:	
<ul style="list-style-type: none"> Threshold Limit Values: 	Not available
8.2 Exposure Control:	
<ul style="list-style-type: none"> Engineering measures 	Handle in accordance with good industrial hygiene and safety practice. Process enclosure, especially in potentially dusty units. Dust control: dust and Zn in dust needs to be measured in the workplace air (static or individual) according to national regulations.
<ul style="list-style-type: none"> Respiratory Protection: 	Use a dust respirator if required. Avoid inhaling dust
<ul style="list-style-type: none"> Hand Protection 	Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
<ul style="list-style-type: none"> Eye protection 	Wear appropriate protective eyeglasses or chemical safety goggles
<ul style="list-style-type: none"> Skin protection 	Wear appropriate gloves while handling. Use respirator in high concentration of Zn dust.
Section 9 – PHYSICAL & CHEMICAL PROPERTIES:	
9.1 General Information:	
<ul style="list-style-type: none"> Physical state 	: Powder
<ul style="list-style-type: none"> Color 	: White
<ul style="list-style-type: none"> Odour 	: Odourless
9.2 Important health, safety and environmental information	
<ul style="list-style-type: none"> pH(1% solution water) 	: 6.8 – 7.5 (aqueous solution)

Safety Data Sheet Zinc Borate

• Molecular Weight	: 434.7
• Boiling point/boiling range	: Not applicable
• Melting point	: 650°C (1202F)
• Auto ignition point	: Not applicable
• Specific gravity	: 2.77 g/cm ³
• Vapour pressure	: Negligible @20°C
• Vapour density	: Not available
• Volatility	: Not available
• Solubility in water	: 0.251 mg/L at Temp. 21.5 °C
• log Po/w	: Not available
• Index of refraction	: Not available
Section 10 - STABILITY AND REACTIVITY	
• Reactivity	No data available
• Chemical stability	Stable under normal conditions of storage and use
• Possibility of hazardous reactions	Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard.
• Conditions to avoid	Avoid contact with strong reducing agents
• Hazardous decomposition products	None
• Incompatible materials	Reaction with strong reducing agents, such as metal hydrides or alkali metals, will generate hydrogen gas, which could create an explosive hazard.
Section 11 -- TOXICOLOGICAL INFORMATION	
11.1 Information on toxicological effects:	
No Information available	
11.2 Irritation Corrosion:	
Eye: Is not considered to be a human eye irritant in normal industrial use	
Skin: Not expected to be an irritant	
11.3 Sensitization	
•	Not found to be skin sensitizing
11.4 CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)	
• Carcinogenicity	IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC

Safety Data Sheet

Zinc Borate

• Mutagenic effects	: Not a mutagen
• Reprotoxic effects	: Classified as reprotoxic category 2
11.5 Other toxic effects on humans:	
• Inhalation	High dust concentration is irritating to the respiratory tract.
• Eyes	Non irritant to the eye
• Skin	Non irritant
• Ingestion	If swallowed in large quantity, may cause gastrointestinal symptoms.
• Acute oral toxicity	Low acute oral toxicity
11.6 NIOSH Immediately Dangerous To Life or Health Concentration (IDLH):	
• No data available	
11.7 Specific target organ toxicity:	
• Single exposure :	No data available
• Repeated exposure :	No data available
Section 12 - ECOLOGICAL INFORMATION	
12.1 Ecotoxicity	
Both boron (B) and zinc (Zn) occur naturally in seawater at average concentrations of 5 mg/L B and 8 µg/L Zn, respectively, and at lower concentrations, generally, in fresh water. Zinc borate can decompose, under certain environmental conditions, to form sparingly water soluble zinc hydroxide and water soluble boric acid.	
12.2 Persistence and degradability:	
• Non biodegradable	
12.3 Bioaccumulative potential:	
• Low bioaccumulation potential; log Pow < 0.2, based on zinc (4:1) borate monohydrate. Additionally, Firebrake ZB will undergo hydrolysis in water to form boric acid and zinc hydroxide. Neither of these substances will biomagnify through the food-chain	
12.4 Mobility in soil:	
• The product is sparingly soluble in water and may be leachable through normal soil.	
12.5 Results of PBT and vPvB assessment:	
• PBT assessment does not apply	
• According to Annex XIII of REACH, criteria for the assessment for PBT and vPvB properties do not apply to inorganic substances.	













Safety Data Sheet

Zinc Borate

12.6 Other adverse effects:							
<ul style="list-style-type: none"> No data available 							
Section 13 - DISPOSAL CONSIDERATIONS							
<ul style="list-style-type: none"> Waste treatment methods : 							
	Small quantities of Zinc Borate can usually be disposed of at landfill sites. No special disposal treatment is required, but local authorities should be consulted about any specific local requirements						
	Contaminated packaging: See above						
Section 14 - TRANSPORT INFORMATION							
Land transport (ADR/RID)							
<ul style="list-style-type: none"> UN Number 	3077						
<ul style="list-style-type: none"> UN proper shipping name 	Solid, N.O.S. (Zinc Borate)						
<ul style="list-style-type: none"> Transport hazard class 	9						
<ul style="list-style-type: none"> Packing group 	III						
Marine transport (IMDG)							
<ul style="list-style-type: none"> UN Number 	3077						
<ul style="list-style-type: none"> Proper shipping name and description 	Solid, N.O.S. (Zinc Borate)						
<ul style="list-style-type: none"> Transport hazard class 	9						
<ul style="list-style-type: none"> Packing group 	III						
<ul style="list-style-type: none"> Marine pollutant 	Yes(P)						
15.1 Other regulatory information:							
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.							
Safety, health and environmental regulations/legislation specific for the substance or mixture Control of Substances Hazardous to Health Regulations (COSHH) 2002 SI 2002/2677 and COSHH Essentials: Easy steps to control chemicals - Control of Substances Hazardous to Health Regulations HSG193.							
<ul style="list-style-type: none"> HMIS (Hazardous Materials Identification system) classification 	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="background-color: #0056b3; color: white;">Health</td> <td>2</td> </tr> <tr> <td style="background-color: #ff0000; color: white;">Fire</td> <td>0</td> </tr> <tr> <td style="background-color: #ffff00;">Reactivity</td> <td>0</td> </tr> </table>	Health	2	Fire	0	Reactivity	0
Health	2						
Fire	0						
Reactivity	0						

Safety Data Sheet

Zinc Borate

	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Personal Protection</td> <td style="width: 50%; text-align: right;">E</td> </tr> <tr> <td colspan="2" style="padding: 5px;"> <div style="background-color: #0056b3; color: white; padding: 2px;">2 = Temporary or minor injury may occur.</div> <div style="background-color: #ff0000; color: white; padding: 2px;">0 = Materials will not burn</div> <div style="background-color: #ffff00; padding: 2px;">0 = Materials that are normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosives.</div> </td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 10px;">    </td> </tr> <tr> <td colspan="2" style="text-align: center;"> E = Safety Glasses + Gloves +  </td> </tr> </table>	Personal Protection	E	<div style="background-color: #0056b3; color: white; padding: 2px;">2 = Temporary or minor injury may occur.</div> <div style="background-color: #ff0000; color: white; padding: 2px;">0 = Materials will not burn</div> <div style="background-color: #ffff00; padding: 2px;">0 = Materials that are normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosives.</div>		  		E = Safety Glasses + Gloves + 	
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E = Safety Glasses + Gloves + 									
<ul style="list-style-type: none"> • NFPA (National Fire Protection Association) 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Health</td> <td style="width: 50%; text-align: right;">1</td> </tr> <tr> <td>Fire</td> <td style="text-align: right;">0</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: right;">0</td> </tr> <tr> <td colspan="2">Personal Protection</td> </tr> </table> <div style="padding: 5px;"> <div style="background-color: #0056b3; color: white; padding: 2px;">1 = Exposure would cause irritation with only minor residual injury</div> <div style="background-color: #ff0000; color: white; padding: 2px;">0 = Materials that will not burn</div> <div style="background-color: #ffff00; padding: 2px;">0 = Normally stable, even under fire exposure conditions, and are not reactive with water.</div> </div>	Health	1	Fire	0	Reactivity	0	Personal Protection	
Health	1								
Fire	0								
Reactivity	0								
Personal Protection									
15.2 Chemical Safety Assessment: <ul style="list-style-type: none"> • A chemical safety assessment has been carried out for the substance or the mixture by the supplier (LR) -No 									
Section 16 – OTHER INFORMATION The information provided in 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 guidance for safe handling, use, processing, Storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information related only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.									
16.1 Technical Advice: <ul style="list-style-type: none"> • Use data given in this Safety Data Sheet and make an inventory list of all chemicals used in the factory • Create a Register for Workplace Chemicals; • Set priorities concerning the safety in the organization • Create emergency plans for the assessed hazards; • Organize occupational health care and regular surveys as necessary; 									

Safety Data Sheet

Zinc Borate

<ul style="list-style-type: none">Organize contacts with authorities/laboratories to create a monitoring system for chemical hazards, and to reliably measure and/or estimate occupational exposures to chemicals when needed;
<ul style="list-style-type: none">Start collecting case studies of accidents and sickness records in the enterprise to create a basis for priority measures in the control of hazards;
<ul style="list-style-type: none">Involve workers in safety organizations, such as the system of Safety Representatives and Committees.
<ul style="list-style-type: none">Do regular inspection using checklists made for the particular chemicals and chemical processes in use;
<ul style="list-style-type: none">Mark and label all chemicals;
<ul style="list-style-type: none">Keep at hand an inventory list of all chemicals handled in the place of work together with a collection of Chemical Safety Data Sheets for these chemicals;
<ul style="list-style-type: none">Train workers to read and understand the Chemical Safety Information, including the health hazards and routes of exposure; train them to handle dangerous chemicals and processes with respect;
<ul style="list-style-type: none">Plan, develop and choose the safe working procedures;
<ul style="list-style-type: none">Reduce the number of people coming into contact with dangerous chemicals;
<ul style="list-style-type: none">Reduce the length of time and/or frequency of exposure of workers to dangerous chemicals;
<ul style="list-style-type: none">Train workers to know and understand the emergency procedures;
<ul style="list-style-type: none">Equip and train workers to use personal protective equipment properly after everything possible has been done to eliminate hazards by means of other methods;
16.2 List of relevant R-phrases
R50 - Very toxic to aquatic organisms

Created By:

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Contact Person Jastin Sardhara

Note: ELC GROUP, Momaja s.r.o., acting as Only Representative for Rubamin Limited (India)

Date of Preparation: 18th February 2015

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