Safety Data Sheet

C-TEC ZB400, ZB800, & ZB800C **MSDS No. 9640.10**

Date of Preparation: 7/16/96 Revision: 1/18/13

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: C-TEC ZB400, ZB800, & ZB800C
General Use: Flame retardant in plastics, rubber, and resins.
Manufacturer: Marshall Additive Technologies
Division of the R. J. Marshall Company
26776 W. 12 Mile Road
Southfield, MI 48034-7807
Phone: (248) 353-4100, Fax: (248) 948-6460

Emergency Phone: (800) 424-9300
Date Revised: 1/18/13
Prepared By: Stephanie Nichols

Section 2 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆


Symbol N: Dangerous to the Environment

R-phrase: R50/53

HMIS	
H	0
F	0
R	0
PPE†	E

†Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, Skin.
Acute Effects
Inhalation: Inhalation of high concentrations of this inert nuisance particulate can result in mild irritation of the respiratory tract.
Eye: May cause irritation through mechanical abrasion.
Skin: Drying of the skin can occur.
Ingestion: Unlikely. Swallowing large quantities may cause choking.
Carcinogenicity: Neither this product nor any of its components are considered carcinogenic by OSHA, IARC, NTP, ACGIH.
Medical Conditions Aggravated by Long-Term Exposure: Chronic respiratory disease.

Section 3 - Composition / Information on Ingredients

Ingredient Name	CAS Number	Percent by Weight
Zinc Borate	1332-07-6	Max 100

Exposure Limits:

Ingredient	Industry Recommended PELT TWA
Zinc Borate	10 mg/m^3

Note: For the purpose of reporting for Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40CFR372.0 maximum percent by weight Zinc content is 30.3.

Section 4 - First Aid Measures

General: Move the exposed person to fresh air at once. Treat symptomatically.
Inhalation: Remove to a ventilated area. Seek medical advice.
Eye Contact: Flush eyes thoroughly for 15 minutes taking care to rinse under eyelids. Do not scrub. Abrasion may cause irritation. If discomfort continues, continue to wash with water. If irritation persists, consult a physician.
Skin Contact: Remove affected person from source of contamination. Wash skin thoroughly with soap and water for at least 15 minutes. Consult a physician if irritation persists.
Ingestion: Rinse mouth thoroughly. Drink a few glasses of water or milk. Get medical attention immediately!
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians: N/A
Special Precautions/Procedures: N/A

Section 5 - Fire-Fighting Measures

Flash Point: N/A
Flash Point Method: N/A
Burning Rate: Not determined.
Auto-ignition Temperature: Not applicable.
Flammability Classification: Non-flammable.
Extinguishing Media: This material is not combustible. Use extinguishing media appropriate for surrounding fire.
Unusual Fire or Explosion Hazards: None known.
Hazardous Combustion Products: None known.
Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.
Fire-Fighting Equipment: No specific fire fighting procedures given.

Section 6 - Accidental Release Measures

Personal Precautions During Spill: Wear suitable protective clothing.
Spill /Leak Procedures: Sweep up spillage and place into clean container. Avoid generation and spreading of dust. Use approved respiratory equipment if excessive amounts of dust are present. Flush with plenty of water to clean spillage area. Avoid release to natural watercourses. Wastewater must be disposed of in accordance with National and Local Regulations.
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 tp their normal environmental background levels.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid handling which leads to dust formation. Provide good ventilation. Mechanical ventilation or local exhaust ventilation may be required. Avoid spilling, skin, and eye contact. Read and follow manufacturer's recommendations. Follow the principles of good occupational hygiene to control personal exposures.
Storage Requirements: Store at moderate temperatures in dry, well-ventilated area. Keep tightly closed in a dry, cool place.
Shelf-Life: 12 months when stored in dry, well-ventilated areas.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls:
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.
Respiratory Protection: No specific recommendation made, but respiratory protection may still be required under exceptional circumstances when excessive air contamination exists.
Protective Clothing/Equipment: Wear suitable protective gloves made of butyl rubber or nitrile if there is risk of skin contact. Wear approved safety glasses or
goggles.
Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: powder
Appearance and Odor: white odorless
Odor Threshold: n/e
Vapor Pressure: n/a
Vapor Density (Air=1): n/a
Formula Weight: 434.64
Bulk Density: 400-700 kg/m^3 (tapped)
Specific Gravity (H_2O=1, at 4 °C): 2.68
pH: 7-8 (aqueous filtrate of 20% suspension)

Water Solubility: <1% (% in weight)
Other Solubilities: soluble in acids and bases
Boiling Point: n/a
Freezing/Melting Point: n/a
Viscosity: n/a
Refractive Index: n/a
Surface Tension: n/a
% Volatile: n/a
Evaporation Rate: n/e

Section 10 - Stability and Reactivity

Stability: This product is stable at room temperature in closed containers under normal storage and handling conditions.
Polymerization: Hazardous polymerization cannot occur.
Chemical Incompatibilities: Strong acids and bases. Strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas, which could create an explosive hazard.
Conditions to Avoid: None known.
Hazardous Decomposition Products: None

Section 11- Toxicological Information

Toxicity Data:*

Toxic Dose 1-LD50: >10,000 mg/kg (oral rat)
Low order of acute toxicity.

Section 12 - Ecological Information

Stunted and retarded full growth of riverside plants are reported where Zinc levels are excessive.
LC50 96hrs fish (mg/kg): 2.4 (Rainbow Trout)
EC50 48hrs daphnia (mg/l): 76
Zinc Borate is sparingly soluble in water and may leach through soil. Under certain environmental conditions Zinc Borate will slowly hydrolyze to form other inorganic chemicals such as zinc hydroxide and boric acid. Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
Bioaccumulation/Degradation: Low bioaccumulation potential; logPow <0.2 based on zinc (4:1) borate monohydrate.

Section 13 - Disposal Considerations

Disposal: place material into dry container with clean shovel, cover and move. Confirm disposal procedures with environmental engineer and local regulations. Dispose of in accordance with local authority requirements. Zinc Borate is not listed under any sections of RCRA, however Zinc Borate waste material is classified as hazardous waste in California due to the zinc concentration exceeding the total threshold limit concentration.
Waste class: special waste.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101): US DOT Hazardous substance. RQ=1000 pounds. When transported in packages less than the reportable quantity (RQ), zinc borate is not a DOT Hazardous material.

UN No.: 3077

Hazard Class (ADR): Class 9: Miscellaneous dangerous substance and articles.

ADR Class No.: 9 ADR Item No.: III Hazards No. (ADR): 90 ADR Label No.: 9

Proper shipping name I: Environmentally hazardous substance, Solid N.O.S.

UN Sea: 3077 Sea Transport Class No.: 9 Sea Pack Gr: III Marine Pollutant: No

UN Air: 3077 Air Transport Class No.: 9 Air Pack Gr: III

Special Provisions: 8, 146, B54, IB8, N20	Passenger Air/Rail Limit: None
Packaging Exceptions: 155	Air Cargo Limit: None
Non-Bulk Packaging: 213	Vessel Stowage: A
Bulk Packaging: 240	Other Stowage: N/A

TDG Canadian Transportation: Listed as Zinc Borate 9.2 NA9155 Packing Group III. Regulated Limited of 50kg.

Tariff/Commodity Code: 2840.20

Section 15 - Regulatory Information

EPA Regulations:

RCRA Hazardous Waste Number (40 CFR 261.33): Not listed
RCRA Hazardous Waste Classification: Not classified
CERCLA Hazardous Substance (40 CFR 302.4): Listed, RQ-1000#
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed
Clean Water Act: Listed, RQ-1000#
Zinc or Zinc Compounds are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.0.

Risk Phrases: R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Phrases: S2: Keep out of reach of children.
S60: This material and its container must be disposed of as hazardous waste.
S61: Avoid release to the environment.

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

TSCA

This substance or all of its components are on the Chemical Substances Inventory of the Toxic Substance Control Act (TSCA Inventory [USA]). Please note that this product is not subject to any legal reporting requirements under these acts.

INTERNATIONAL REGULATIONS
Canada: Listed on the DSL.
Canada WHMIS: Uncontrolled product.
Europe: Listed on EIENCS #215-566-6
Europe: Listed on EC Directive 67/548/EC as Dangerous for the Environment.
Australia: Listed on AICS.
China: Listed on IECSC.
Korea: Listed on KECI #KE-03516.
Philippines: Listed on PICCS.
Japan: Listed on ENCS.
Taiwan: Listed on NECI.
New Zealand: Listed on NZIoC

Section 16 - Other Information

Prepared By: Stephanie Nichols
Revision Notes: 1/18/13

Product Grades Available from the R. J. Marshall Company (this list may be incomplete):

CTZB400	CTZB800	CTZB800C

Note: This includes all EXP ZB blends.
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