

BOROGARD® ZB
Corrosion Inhibitor, Biocide and Fire Retardant

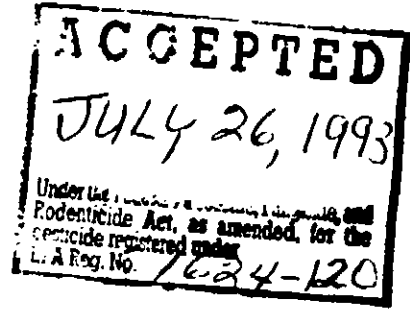
For Use Only As a BIOCIDES (Fungicide/Preservative) Additive in the Manufacturing of, Coatings, Plastic and Wood Composite Products

ACTIVE INGREDIENT:

Zinc Borate (2ZnO•3B₂O₃•3.5H₂O).....100.00%

KEEP OUT OF REACH OF CHILDREN

CAUTION



PRECAUTIONARY STATEMENTS: Hazards to Humans and Domestic Animals. Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling. **STATEMENT OF PRACTICAL TREATMENT:** IF SWALLOWED, immediately contact a physician or Poison Control Center. If these are unavailable, give the victim 1 or 2 glasses of water and induce vomiting by touching back of throat with fingers. Do not induce vomiting or give anything by mouth to an unconscious person. IF IN EYES, flush with plenty of water. Call a physician if irritation persists. IF ON SKIN, remove contaminated clothing and wash skin with soap and water. IF INHALED, remove victim to fresh air.

Environmental Hazards

Do not discharge effluent containing this product directly into lakes, stream, ponds, estuaries, oceans or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the Environmental Protection Agency.

DIRECTIONS FOR USE: Federal law prohibits use of this product in manner inconsistent with its labeling. Read BOROGARD® ZB Technical Data Sheet for formulation details.

Storage and Disposal

Do not contaminate water, food or feed by storage or disposal.
STORAGE: Store in a dry place. Do not store where children or animals may gain access.
BOROGARD® ZB DISPOSAL: Wastes resulting from the use of the product may be disposed of on site or at an approved waste disposal facility.
CONTAINER DISPOSAL: Completely empty by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused, dispose of in the same manner.

A 20 MULE TEAM® Product

Manufactured By
U. S. Borax Inc.
26877 Tourney Road, Valencia, CA 91355-1847
Emergency Phone: 1-800 228-5635 EXT. 144

EPA Est. 1624-CA-01
EPA Reg. No. 1624-120
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CAS No. 138265-88-0 (12447-61-9)
TSCA No. 1332-07-6

Net Contents: 50 lbs. (22.7kg)

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PROPOSED TECHNICAL DATA SHEET

BOROGARD® ZB

GENERAL USE INSTRUCTIONS

BOROGARD® ZB is a free flowing, readily dispersible, bright white powder, which does not detract from bright colors or pure whites. Its optimum performance as a corrosion inhibitor and biocide (in-can preservative and fungicide) is obtained when BOROGARD® ZB is uniformly dispersed in coatings. Therefore, it should be incorporated during the pigment dispersion cycle in the coating preparation process.

CORROSION INHIBITOR APPLICATIONS

BOROGARD ZB is a unique form of zinc borate which can be used as a corrosion inhibitor in both organic solvent-based and water-borne coatings. BOROGARD ZB allows the formation of economical high performance coatings effectively without the use of chromium, lead or barium-based pigments. It may be used effectively as an equal weight replacement for zinc chromate in many formulations.

Synergistic enhancement of performance has also been noted for combinations of zinc borate with common corrosion inhibitive pigments such as zinc phosphate and barium metaborate. The formal water of hydration of BOROGARD ZB is bound in a nonreactive form and is retained at temperatures above 500°F, thereby allowing this product to be used in high temperature baking systems. A good formulation range is 0.25-2.5 lb/gal. of BOROGARD ZB.

BIOCIDAL (IN-CAN PRESERVATIVE AND FUNGICIDE) APPLICATIONS

Coating Systems:

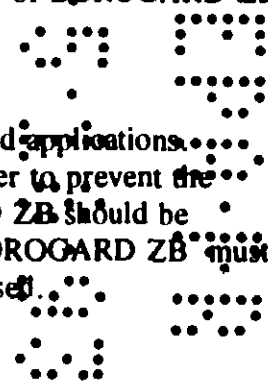
BOROGARD ZB (EPA Registration No. 1624-120) can also function as an in-can preservative and fungicide. It controls mixed fungi such as *Aspergillus niger*, *Penicillium funiculosum*, *Chaetomium globosum*, *Gliocladium vivens* and *Aureobasidium pullulans*. It is also an effective in-can paint preservative. The recommended coatings formulation is 0.25-2.5 lb/gal. BOROGARD ZB. A maximum of 2.5 lb/gal of BOROGARD is recommended for biocide coatings applications.

Plastic and Rubber Products:

BOROGARD ZB controls mixed fungi such as *Aspergillus niger*, *Penicillium funiculosum*, *Chaetomium globosum*, *Gliocladium vivens* and *Aureobasidium pullulans*. The effective additive level is dependent on fungal susceptibility of the product, as well as the ultimate conditions for the use of the product. For interior applications, such as, PVC carpet-backing, wall coverings, auto upholstery, shower curtains, and urethane mattresses, a loading of 3-20 phr of BOROGARD ZB is recommended. For exterior applications, such as, polyolefin wire and cables, PVC tenting and awnings, acrylics roof coating, 3-30 phr of BOROGARD ZB is recommended. No plastic formulation should exceed 100 phr of BOROGARD ZB additive.

Wood Composite Materials:

BOROGARD ZB is an effective wood preservative for wood composite materials used in above ground applications. BOROGARD ZB can be used as an additive in the manufacturing of wood composite materials in order to prevent the growth of white (eg. *Trametes versicolor*) and brown (eg. *Gleophyllum trabeum*) rot. BOROGARD ZB should be combined with the adhesive binder and wood particles before the curing stage. The loading of the BOROGARD ZB must be at least 0.5 % (by weight BOROGARD ZB) and not exceed 8 % depending on the wood species used.



FORMULA: $2ZnO \cdot 3B_2O_3 \cdot 3.5H_2O$

% ZnO (theo.)	37.45
% B ₂ O ₃ (theo.)	48.05
% H ₂ O (theo.)	14.50

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FORMULA WEIGHT434.66

COLOR: White

REFRACTIVE INDEX1.58

PARTICLE SIZE: Mean particle size is typically in the range of 2 to 4 microns.

CRYSTAL DENSITY2.8 g/cm³

BULKING DENSITY (Loose pack, typical).....25-40 lb/ft³

SOLUBILITY: Less than 0.28 wt.% in water at room temperature. Can be hydrolyzed by strong acids and bases.

OIL ABSORPTION30g oil/100g
(ASTM 281-84)

CONTAINERS

Multiwall paper bags with a polyethylene moisture-resistant film barrier, 50 pounds (22.68kg) net; fiber drums with polyethylene liner, 250 pounds (113.4 kg) net.

BOROGARD® is a registered trademark.

NOTICE: THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED INCLUDING ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, WHICH EXTEND BEYOND THE DESCRIBED USED IN THIS BULLETIN.

WARNING: ON ALL PRODUCTS, AVOID PRC LONGED INHALATION OR PROLONGED SKIN CONTACT. NOT FOR FOOD OR DRUG USE. READ MATERIAL SAFETY DATA SHEETS AND ALL INSTRUCTIONS RELATING TO THE PRODUCTS BEFORE USE.

If possible uses of these products have been mentioned herein, it is not intended that the above products be used to practice any applicable patent, whether mentioned in this Bulletin, or not, without procurement of a license, if necessary, from the owner, following investigation by the user. Nor is it intended or recommended that the products be used for any such described purposes without verification of their safety and efficacy for such purposes.

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