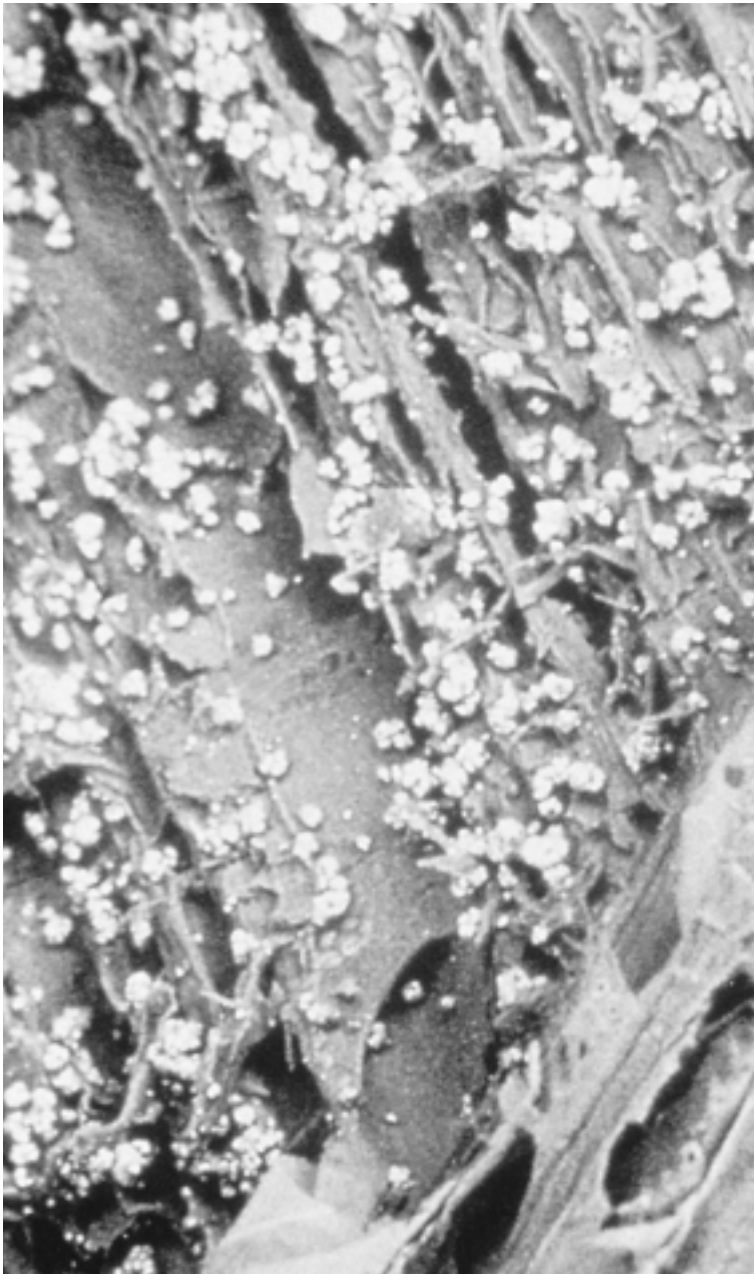


  
**20 MULE TEAM**

# **Borogard<sup>®</sup> ZB**

Preservative for wood composites



**Product profile**



# Borogard<sup>®</sup> ZB

## Preservative for wood composites



Zinc Borate

CAS Number 138265-88-0

TSCA Number 1332-07-6

EPA Reg. Number 1624-120

### Attributes and uses

*Borogard*<sup>®</sup> ZB wood preservative provides protection from wood destroying organisms for wood composite materials used in protected above-ground applications. *Borogard* ZB can be used as an additive in the manufacturing of wood composite materials in order to control the growth of white and brown rot decay fungi. *Borogard* ZB wood preservative also helps protect composite materials from damage caused by wood destroying insects, including subterranean termites such as *Coptotermes formosanus* (Formosan subterranean termites).

The ability of a wood composite to resist wood destroying organisms is dependent on wood species, resin type, resin and wax content, method of production, exposure hazard, and the presence of wood preservatives. In independent tests performed in Hawaii on aspen flake composites, *Borogard* ZB wood preservative at a retention of 0.75% (w/w) provided protection against decay fungi and Formosan subterranean termites. The data presented above is intended to serve only as a guideline and the wood composite manufacturer should determine the *Borogard* ZB loadings for their treated product and its end-use application. *Borogard* ZB loadings should not exceed 8% (w/w) and for loadings in excess of 1.5% (w/w) it may be necessary to use additional adhesive binder to compensate for possible effects on strength.

Wood composites treated with *Borogard* ZB are used for a variety of end uses. Typical applications include decay resistant siding, roofing and millwork, termite resistant sheathing and subflooring as well as commodities for export to

high decay hazard regions. Composites treated with *Borogard* ZB are not suitable for ground contact and must be protected with a water repellent coating when used in exterior applications (e.g. joinery and siding). *Borogard* ZB has been used in North America for several years with a broad spectrum of efficacy and low acute mammalian toxicity. Independent laboratory and field studies carried out by universities and government testing facilities indicate efficacy against wood decay fungi and termites under the conditions tested.

*Borogard* ZB is only sparingly soluble in water at room temperature (<0.28% w/w) and is therefore leach resistant. It does not contain any organic components and since it is applied as a dry powder does not require the use of organic solvents. By adding *Borogard* ZB prior to or during the blending process, it is possible to achieve a thorough and uniform distribution of the chemical throughout the composite material. When this method is used, efficient distribution of the preservative in the manufactured board can be confirmed by chemical assay. Specific details on how to analyze for both micro- and macro-distribution can be supplied on request from U.S. Borax Inc.

*Borogard* ZB is chemically stable to 290° C and will not be altered during normal wood composite manufacturing processes. Composites treated with appropriate levels of *Borogard* ZB generally retain their natural appearance and strength. Ferrous metals, plastics, rubber, putties, bituminous solutions, other sealants, primer and finish paints will not be adversely affected by wood composites treated with *Borogard* ZB.

### Chemical composition (theoretical)

Boric oxide, B <sub>2</sub> O <sub>3</sub>	48.05%
Zinc oxide, ZnO	37.45%
Water of crystallization, H <sub>2</sub> O	14.50%

### Chemical and physical properties

Formula weight	434.66
Appearance	White, odorless, powder
Median particle size	7 microns (Sedigraph)
Solubility	Less than 0.28% in water at room temperature.
Stability	Thermally stable up to 290 °C. Can be hydrolyzed by strong acids and bases.
Crystal density	2.79 g/cc

### Containers

Multi-wall paper bags with a polyethylene moisture-resistant film barrier, 50 pounds (22.7 kg) net; 55 pounds (25 kg) net; or superbags with polyethylene liner, 2500 pounds (1134 kg) net.

### Stability

When stored under normal conditions of temperature and humidity, *Borogard ZB* is chemically stable and shows no tendency to cake.

### Warnings

Avoid prolonged inhalation or prolonged skin contact. Not for food or drug use. Read all instructions relating to the product before use.

#### Notice:

**Before using this product, please read the label and the Material Safety Data Sheet.**

This product is not intended for any unlawful or prohibited use including, without limitation, any use that would constitute infringement of applicable patents. Nor is it intended that this product should be used for any of the purposes suggested by seller or any other purpose without independent verification by the user that (1) this product will be safe, fit and effective for such purposes, and (2) user's use, application and disposal of the product will comply with all applicable laws, regulations and registration requirements.

The seller shall have no liability resulting from misuse of this product, including without limitation, if the product is not used in accordance with directions, applicable industry standards or safe practices. The buyer assumes all responsibility, including any injury or damage, resulting from misuse of the product, whether used alone or in combination with other materials. The seller provides no guarantee, whether express or implied, as to the results that may be obtained through use of this product. THE SELLER WARRANTS ONLY THAT, AT THE TIME OF DELIVERY, THIS PRODUCT SHALL MEET SELLER'S GENERAL PUBLISHED SPECIFICATIONS FOR THE PRODUCT. THE SELLER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE BUYER'S EXCLUSIVE REMEDY AND THE SELLER'S TOTAL LIABILITY TO THE BUYER FOR CLAIMS RELATING TO A BREACH OF THE FOREGOING LIMITED WARRANTY IS EXPRESSLY LIMITED TO, AT THE BUYER'S OPTION, EITHER REPLACEMENT OF, OR REPAYMENT OF THE PRICE PAID FOR, THE PRODUCT WITH RESPECT TO WHICH THE BREACH IS CLAIMED. THE BUYER WAIVES ALL OTHER CLAIMS BY THE BUYER AGAINST THE SELLER. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, THE SELLER SHALL HAVE NO LIABILITY FOR SPECIAL, CONSEQUENTIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES.

**Borax Europe Limited**  
1A Guildford Business Park  
Guildford, GU2 8XG  
United Kingdom  
Dr. Magnus Schoeman  
Telephone: (44) 1483 242060  
Fax: (44) 1483 242091

**U.S. Borax Inc.**  
26877 Tourney Road  
Valencia, California 91355-1847  
USA  
Dr. Mark Manning  
Telephone: (1) 661 287 6089  
Fax: (1) 661 287 5545

**Front cover photo:** This micrograph, acquired at 200x magnification using Scanning Electron Microscopy (SEM), illustrates the distribution of the preservative on the surface of the wood furnish.