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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

FEB - 7 1994

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Zinc Borate (Borogard ZB) - Evaluation of Leachability  
Data Submitted by the Registrant and Reviewed by  
EFGWB/EFED (EPA Registration No. 1624-120)

P.C. Code: 128859  
Tox Chem No.: 909B  
DP Barcode : D197085  
Submission: S454109

FROM: Yiannakis M. Ioannou, Ph.D., Section Head  
Review Section I, Toxicology Branch II  
Health Effects Division (7509C)

*J.M. Ioannou*  
*2/2/94*

TO: Denise Greenway/Susan Lewis, PM 21  
Fungicide-Herbicide Branch  
Registration Division (7505C)

THRU: Marcia van Gemert, Ph.D., Branch Chief  
Toxicology Branch II  
Health Effects Division (7509C)

*M. van Gemert* *2/3/94*

Registrant: U.S. Borax and Chemical Corporation, Los Angeles, CA

Action Requested: Determine if the leachability study, conducted  
by the Registrant, satisfies the Toxicology data requirements for  
Section 3 registration of Zinc Borate (Borogard ZB).

Recommendations: Toxicology Branch II has determined that based  
on the acceptable leachability study conducted by the Registrant  
and reviewed by EFGWB/EFED the Toxicology data requirements for  
Zinc Borate (Borogard ZB) are now fulfilled and support Section 3  
registration of this chemical.

## Background

Borogard ZB is proposed for use as a biocide (Fungicide/Preservative) additive in the manufacturing of coatings, plastics and wood composite products. For a conditional registration (Registration Notice of July 15, 1991) the Registrant committed to submit to the Agency a dermal sensitization study in guinea pigs and a leachability study as requested by Toxicology Branch II. The dermal sensitization study with Borogard ZB was submitted earlier (memo of March 14, 1991 from Y.M. Ioannou to Susan Lewis) and found to be acceptable. The leachability study was also submitted recently and upon review by Dana Spatz of EFGWB/EFED (review attached) was found to be acceptable and to fulfill the data requirement imposed earlier as part of "Conditional Registration" of Borogard ZB (EPA Reg. No. 1624-120).

## Discussion/Conclusions

The purpose of the leachability study was to evaluate the rate of "leaching of zinc and boron ions from a polyvinyl chloride (PVC) shower curtain formulated to contain Borogard ZB (zinc borate) at the maximum rate recommended on the product label for application, and from an acrylic latex topcoat paint formulation into which Borogard ZB had been incorporated". The results of these studies indicate that the maximum amount of zinc leached from PVC in 20 days (at different pHs) was 1.3% and for boron was 2.2%. The maximum amount of zinc leached from an acrylic latex paint formulation in 20 days (at different pHs) was 3.4% and for boron approximately 30%

Data presented in this study define qualitatively and quantitatively leachates of Borogard ZB from finished end-use products and satisfy the Environmental Fate data requirements for use of Borogard ZB as an additive in the plastic, coating and composite products as listed on the label. This study provides adequate exposure information on zinc and boron which may be used for risk assessment purposes.

Toxicology Branch II now believes that all the data requirements for Borogard ZB have been satisfied and has no objections to Section 3 registration of this chemical.