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OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

MEMORANDUM

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SUBJECT: Zinc Borate- Protocol: FIREBRAKE ZB (1624-120) Product Leaching Study. Submitted by United States Borax and Chemical Corporation. Received by EPA on April 9, 1992.

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A condition of registration of zinc borate (FIREBRAKE ZB, 1624-120) required that an acceptable "product leaching study" be submitted that would qualitatively and quantitatively define leachates from finished end-use-products, i.e., PVC, polyolefin, nylon, etc. U.S. Borax has submitted a revised protocol for this study. EFGWB concludes that this protocol is basically sound and should provide the information required to evaluate the availability of zinc borate from PVC and an acrylic latex coating. However, several concerns were noted which must be adequately addressed by the registrant in the final study.

- a. Although some variation in leach rates can be expected with different plastic formulations, under the currently registered use pattern (indoor residential), the registrant's proposal to test only PVC impregnated with FIREBRAKE ZB and an acrylic latex coating formulated with BOROARD ZB is acceptable. Should the registrant request additional registrations involving significant outdoor use, further testing of finished end-use-products may be required.

- b. The buffering system was not specified. The pH of the system must remain constant throughout the leach rate test.
- c. At this point in time, it cannot be determined whether or not the sampling intervals of 1, 5, 9, and 20 days will be sufficient to adequately define the leach rate pattern. The registrant must be sure to include enough sampling points in order to characterize any changes in release rate over time.
- d. A minimum of 3 standards and a reagent blank should be used to establish a calibration curve.
- e. Given the experimentally determined detection limits<sup>(1,2)</sup> of 0.1 ppb for Boron and 0.01 ppb for Zinc using Inductively Coupled Plasma emission spectroscopy (ICP), the registrant should provide justification for the detection limits stated in their protocol (0.1 ppm for B and Zn).
- f. The final report must include a representative sample of raw data, including chromatograms and other instrument printouts.

### Background

Zinc borate has been used extensively as a fire retardant, smoke suppressant, and afterglow suppressant in PVC, nylon, epoxy, polyolefin, polyester, polyurethane, EPDM and SBR rubbers, etc. The pesticidal uses of this chemical are to control mold, mildew and fungi on plastics such as shower curtains, wall coverings, PVC tenting and awnings, polyolefin wire, etc., and coatings including latex, oil, alkyd and resin systems. Conditional registration was granted on July 15, 1991.

<sup>(1)</sup>V.A. Fassel and R.N. Kniseley, Anal. Chem., 46, 1110A, 1155A (1974).

<sup>(2)</sup>P.W.J.M. Boumans and F.J. de Boer, Proc. Anal. Div. Chem. Soc., 12, 140 (1975).