

V. Ananthakrishnan, FES-25 12/74  
J. H. Leahy, B-2224  
R. P. Smith, B-1266  
C. H. Ikeda, B-2266  
R. E. Pike, B-5262  
J. B. Lyman, ML  
R. Kluberton, BCAME

February 19, 1974

E. B. SWAIN, JR.  
F & F DEPARTMENT  
WILMINGTON, B-2373

VINYL CHLORIDE

Ref: Your letter to J. B. Lyman, dated 2/12/74

Union Carbide's BAKELITE E-2000, a vinyl copolymer resin, is the basic ingredient in our polyvinyl chloride powder coating composition.

Since vinyl chloride monomer is probably carcinogenic, we have requested Union Carbide to provide data on the residual monomer content the E-2000 resin may have and, if possible, set a specification limit.

Attached is Union Carbide's reply stating that (a) because of the exceptional volatility of vinyl chloride monomer, they do not routinely measure the residual monomer content of the resin, and (b) after examining typical samples of the E-2000 resin, they found no detectable residual vinyl chloride monomer. Their testing method is sensitive to 1.5 ppm. Union Carbide is also claiming that the E-2000 resin meets certain food additive regulations for polymeric coatings as food contact surfaces applied to metal substrates.

Handling of the polyvinyl chloride powder in the laboratory, i.e., transferring from one container to another or spraying, is done in well ventilated (negative pressure) hoods and with adequate respiratory protection. We do not have visible dust in the air when these operations are performed. The dust masks we are using are the Comfo style #86430 made by the Mine Safety Appliances Company, Pittsburgh, Pennsylvania, with type "H" ultra-filters (#76876). These filters are tested and guaranteed to be at least 99.98% efficient against 0.3 micron diameter particles (Bureau of Mines Approval No. 21B-90). The average polyvinyl chloride powder particle size is approximately 60 microns with a

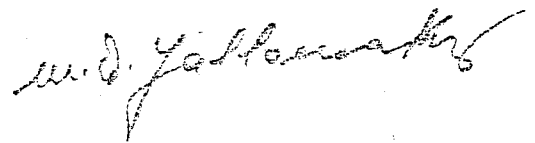
EID10900

range of 4-94 microns.

We always recommend that skin contact should be avoided if at all possible, and that soap and water should be used to remove powder from skin.

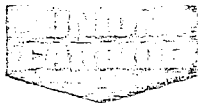
Since Haskell Laboratory is presently reviewing the toxicological aspects of our polyvinyl chloride powder coating formulation ingredients (ref. letter to H. J. Trochimowicz from V. Ananthakrishnan, dated 10/19/73), you may like to relay this letter to H. J. Trochimowicz.

Please review the information provided and advise us of any hazards or additional safety precautions we should be taking.



M. D. YALLOURAKIS

MDY:sr  
attachment



UNION CARBIDE CORPORATION  
CHEMICALS AND PLASTICS

RIVER ROAD, BOUND BROOK, N. J. 08805 - TELEPHONE (201) 356-8000

February 15, 1974

Mr. M. D. Yallourakis  
E. I. DuPont De Nemours & Co.  
Experimental Station Laboratory  
Fabrics & Finishes Department  
Wilmington, Delaware 19898

Dear Mr. Yallourakis:

Mr. Joe Hagan of these laboratories has asked me to write you regarding the food additive status of our E-2000 vinyl resin and its residual vinyl chloride monomer content.

E-2000 is a vinyl copolymer resin listed by chemical identity in Food Additive Regulation 121.2514 for Resinous and Polymeric Coatings as food contact surfaces applied to metal substrates. Food Additive Regulations 121.2526 for components of paper and paperboard and 121.2550 for closures refer to 121.2514 for a list of acceptable materials.

The finished coating or closure must meet the extraction specifications given in the appropriate regulation. Because of the exceptional volatility of vinyl chloride monomer we do not routinely measure the residual monomer content of our vinyl resins as part of our quality control procedures. However, we have examined typical samples of "Bakelite" brand vinyl resin E-2000 for residual vinyl chloride monomer content using the best method available to us at this time (a flame ionization gas chromatographic method) that is sensitive to 1.5 ppm. Our results indicate that in general our E-2000 vinyl copolymer contains no detectable residual vinyl chloride monomer. We hope this information is helpful to you.

Very truly yours,

*W. B. Ackart*  
W. B. Ackart  
Manager, FDA Liaison

WBA:slb

EID10902