

Vista Chemical Company

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April 24, 1990

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XF: 29

VISTA

Mr. Bob Romano
Chemical Manufacturers Association
2501 M Street, N.W.
Washington, DC 20037

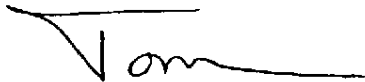
Re: Union Carbide Permeation Data

Dear Bob:

The attached letter expresses some valid concerns regarding the conclusions of our TRI sponsored research and publication. While there will always be varying data in the field of permeation testing, and experience, I believe we should communicate this letter to the EOIC, and suggest Union Carbide write a letter to the editor when the paper is published.

The letter raises an issue that I believe our paper addressed with a cautionary note on Page 4 (attached). Please give me a call to discuss.

Sincerely,



Thomas G. Grumbles, C.I.H.
Environmental Quality Manager

dlj

Attachment

cc: Norm Gaines- Union Carbide Corporation

VVV 000012922

**UNION
CARBIDE**

UNION CARBIDE CHEMICALS AND PLASTICS COMPANY INC.
P.O. BOX 8361, SOUTH CHARLESTON, WV 25303

February 14, 1990

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N. W. GAINES
FILE: 1 YR.
PERMANENT

Dr. Robert R. Romano
Chemical Manufacturers Association
2501 M Street, NW
Washington, D.C. 20037

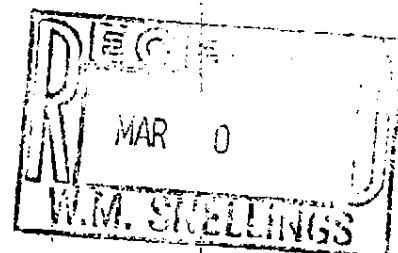
I have received your distribution of the report, "Permeation of Ethylene Oxide Through Protective Clothing Materials for Chemical Emergency Response". This report recommends the use of the North Silver Shield® glove for ethylene oxide. Laboratory studies conducted by our I.H./Health Technology Group, however, have shown that this glove does not provide adequate protection. Although the glove material is impermeable to ethylene oxide, the heat sealed seams are not. We have done three separate studies which have shown almost immediate breakthrough can occur when ethylene oxide is exposed to the seams of this glove. Consequently, we do not recommend its use.

Sincerely,



Richard S. Holmes

RSH:cgs



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a release during transportation or emergency situations in the production plant.

Permeation testing, along with degradation and penetration testing, is frequently used to determine chemical resistance of protective clothing. Degradation refers to the breakdown of a protective material which has been exposed to the test chemical. This is a more obvious and gross failure than permeation. Penetration refers to the passage of the test chemical through seams, imperfections, or other openings in the finished garment. Penetration is a function of garment quality and is beyond the scope of this paper. ←

Permeation testing is done by challenging the material with the chemical and measuring the breakthrough time as the first evaluation parameter. The second parameter determined is the permeation rate, or quantity of chemical permeating the material per unit of time per unit area. Together these two parameters provide a good indication of the effectiveness of the protective material against the test chemical.⁽¹⁾

Permeation test data must be used with caution and cannot always be applied to the generic type (e.g., neoprene, butyl rubber, etc.) of material tested. This is due to the varying levels of performance found among materials of the same type from different manufacturers.^(2,3)

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