



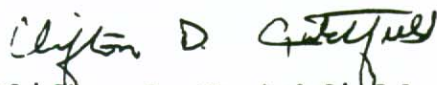
February 5, 1993

Diane D. Porter
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Atlanta, GA 30333

Dear Ms. Porter:

Comments related to the NIOSH Working Draft entitled A Performance Evaluation of DM and DFM Filter Respirators Certified for Protection Against Toxic Dusts, Fumes, and Mists (the Draft) are enclosed. These comments are general in nature, in contrast to the train of specific assumptions and conclusions that are used to arrive at the recommended assigned protection factors listed in Table P of the Draft. The attached comments make a general statement about some of those assumptions and conclusions.

Respectfully submitted,



Clifton D. Crutchfield, Ph.D., CIH
Director, Industrial Hygiene

Comments on the NIOSH Draft Document Entitled A Performance Evaluation of DM and DFM Filter Respirators Certified for Protection Against Toxic Dusts, Fumes, and Mists

1. The net effect of Table P in the Draft is to state that DM filter media are essentially useless against industrial airborne contaminants, and should not be used.
2. Table P results from an absolute approach to protection that may be somewhat analogous to eliminating hazards in a plant by closing the plant. It may be informative for NIOSH to take the opposite tack and try to calculate the probabilities associated with dosing a worker on a routine basis at the PEL if a DM respirator is properly worn in a poly-disperse particulate environment with a variable concentration that can only go as high as 2 x PEL.
3. The Draft tends to discount any knowledgeable input into the respirator selection process. While it is likely that most work environments have not been characterized by particle size distributions, the types of industrial processes that generate predominantly sub-micron particle distributions have been. Improving the quality and dissemination of respirator selection information may be a better control alternative than essentially banning a class of media that can provide effective protection if it is properly selected and used.
4. Estimates of excessive filter media penetration are the dominant cause for the low range of APF's recommended in Table P. Some of the assumptions leading to those estimates appear questionable.
 - a. The issue of particle size is the critical component in the development of the Draft's conclusions. The use of penetration data based upon sub-micron challenge particles does not seem to be well substantiated if the purpose for the DM class of media is kept in mind. A quick review of Hind's graphs¹ shows pretty good filter performance above 1.0 um aerodynamic diameter.
 - b. Since PELs are generally mass based, the use of count based penetration data is also questionable. Given that sub-micron particles may be more dose-active, it is still important to consider the proportion of particulate mass (substantial majority in an environment for which a DM filter would likely be specified?) contained in particles larger than 1.0 um aerodynamic diameter.

- c. The use of worst case filter penetration data, coupled with an assumption that even worse stuff is out there, ignores the part of the respiratory protection model over which we should have the most control. Could not the NIOSH certification process screen out the big-time DM leakers, so that the more difficult to control issue of facesal leakage remains the major concern of employers, workers, and occupational health professionals?