



**NIOSH**

**Posthearing Brief to OSHA**

---

POSTHEARING BRIEF OF THE  
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH  
ON THE  
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION  
PROPOSED RULE ON  
OCCUPATIONAL EXPOSURE TO 2-METHOXYETHANOL, 2-ETHOXYETHANOL  
AND THEIR ACETATES (GLYCOL ETHERS)

29 CFR Part 1910  
Docket No. H-044

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control and Prevention  
National Institute for Occupational Safety and Health

12/1/93



OSHA requested that NIOSH clarify its position on whether pulmonary function testing is appropriate as a screening tool for respirator use.

In its testimony, NIOSH stated:

"The ability of a particular worker to function in a designated job with a specific respirator requires an individualized medical judgement. NIOSH has developed general medical evaluation criteria for screening respirator wearers [NIOSH 1991]. These evaluation criteria do not require that spirometry be routinely performed as a method of determining medical fitness to wear a respirator. Therefore, the specific OSHA requirement for spirometry testing in the respirator section should be deleted. In the absence of medical history or physical examination findings suggestive of cardiac or pulmonary impairment, spirometric measurements "are unlikely to influence the respiratory fitness determination," because 'mild to moderate impairment detected by spirometry would not preclude the wearing of respirators in most cases.'"

NIOSH has reassessed its position for the Occupational Safety and Health Administration (OSHA) proposed standard on glycol ethers and now supports the OSHA proposal (section 1[2][D]) that pulmonary function testing (PFT) be required of all workers who wear respiratory protection. However, these tests do not need to include forced expiratory flow (FEF) as OSHA has proposed because FEF measurements are too variable to be useful for screening [NIOSH 1981; ATS 1991].

NIOSH has changed its position on pulmonary function testing from the testimony because, without pulmonary function testing, some workers with severe pulmonary impairment (as described in Table 13 of ATS [1991]) may not be detected by a medical history and physical exam. Workers with severe pulmonary impairment should not wear respiratory protection.

Requiring pulmonary function testing would provide more objective criteria to help the physician assess workers' pulmonary function. This information should assist physicians in determining the overall fitness to wear respirators for workers with borderline lung function or multiple organ system impairments. Because exposure to glycol ethers is not known to cause pulmonary disease, pulmonary function testing is not a necessary surveillance requirement for workers who do not wear respirators.

## REFERENCES

ATS [1991]. Lung function testing: selection of reference values and interpretative strategies. *Am Rev Respir Dis* 144:1202-1218.

NIOSH [1981]. Manual of spirometry in occupational medicine. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health.

NIOSH [1991]. Criteria for a recommended standard: occupational exposure to ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, and their acetates. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 91-119. Submitted with NIOSH testimony dated 7/21/93.



<b>REPORT DOCUMENTATION PAGE</b>		1. REPORT NO.	2.	3.  PB94-175080
4. Title and Subtitle NIOSH Testimony on Occupational Exposure to 2-Methoxyethanol, 2-Ethoxyethanol and Their Acetates (Glycol Ethers) by R. W. Niemeier, December 1, 1993			5. Report Date 1993/12/01	
7. Author(s) NIOSH			8. Performing Organization Rept. No.	
9. Performing Organization Name and Address NIOSH			10. Project/Task/Work Unit No.	
			11. Contract (C) or Grant(G) No. (C) (G)	
12. Sponsoring Organization Name and Address			13. Type of Report & Period Covered	
			14.	
15. Supplementary Notes				
16. Abstract (Limit: 200 words) This testimony presents a clarification of the position of NIOSH regarding whether pulmonary function testing is appropriate as a screening tool for respirator use. NIOSH has reassessed its position for the OSHA proposed standard on glycol ethers and now supports the OSHA proposal that pulmonary function testing be required for all workers who wear respiratory protection. These tests do not need to include forced expiratory flow as OSHA has proposed as the forced expiratory flow measurements are too variable to be useful for screening. NIOSH has changed its position on pulmonary function testing because some workers with severe pulmonary impairment may not be detected by a medical history and physical exam. Requiring pulmonary function testing would provide more objective criteria to help the physician assess pulmonary function of the worker.				
17. Document Analysis a. Descriptors				
b. Identifiers/Open-Ended Terms NIOSH-Publication, NIOSH-Author, NIOSH-Testimony, Niemeier-R-W, Respiratory-system-disorders, Lung-function, Diagnostic-tests, Lung-disease, Respiratory-protective-equipment, Pulmonary-function-tests				
c. COSATI Field/Group				
18. Availability Statement		19. Security Class (This Report)		21. No. of Pages 3
		22. Security Class (This Page)		22. Price

