



DEPARTMENT OF THE NAVY  
NAVY ENVIRONMENTAL HEALTH CENTER  
2510 WALMER AVENUE  
NORFOLK, VIRGINIA 23513-2617

846-495

6290  
Ser IH18/ 09834

01 JUL 1997

NIOSH Docket Office  
Robert A. Taft Laboratories, M/S C34  
4676 Columbia Parkway  
Cincinnati, OH 45226

Gentlemen:

In the Code of Federal Regulations, Title 42 Part 84, 1996, pages 24740-24743, you requested public comments on how to improve respirator certification regulations. Currently, respirator certifications are issued for an unlimited number of units, without an expiration date. In some instances, respirator technology becomes antiquated and dangerous as compared with more modern respirator technology. Examples of antiquated technology include the hose mask and the hose mask with blower. We recommend periodically reviewing the certification of approved respirators to ensure that their technology is current and appropriate. We recommend withdrawing the respirator certification of hose masks and hose masks with blowers. Our reasons are included in enclosure (1).

For additional information, please contact Mr. D. L. Spelce, in the Industrial Hygiene Directorate, at (757) 363-5524.

Sincerely,

G. D. KRAMER  
Captain (sel), Medical Service Corps  
U.S. Navy  
Director for Industrial Hygiene  
By direction of the Commanding Officer

Encl: (1) Revocation of Hose Mask and Hose Mask with Blower  
Certification

Copy to:  
Chief of Naval Operations (N454)  
Bureau of Medicine and Surgery (MED-24)

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JUL 7 1997

NIOSH DOCKET OFFICE

David L. Spelce  
9 June 1997

SUBJECT

REVOCAION OF HOSE MASK AND HOSE  
MASK WITH BLOWER CERTIFICATION

BACKGROUND

Ref: (a) 29 CFR 1910.134  
(b) Code of Federal Regulations, Title 30 Part 11. 1977.  
p. 65167-65168.

Hose mask respirators are in the classes of respirators (Type A and Type B) that consist of a facepiece, breathing tube, harness, and large-diameter, air-supply hose. The air may be supplied by a blower, either motor or hand driven, or the user, unaided, may simply draw the air into the hose with each breath. Additionally, hose masks with blowers only deliver 1.74 cubic feet per minute (cfm) breathing air to the facepiece as compared to Type C supplied-air respirators, which have a flow rate of four to six cfm into the facepiece.

DISCUSSION:

According to paragraph 1910.134(e)(3)(ii) of reference (a), hose masks with blowers are allowed to be worn into atmospheres that are immediately dangerous to life or health (IDLH). However, hose masks with blowers lost their approval for entry into IDLH atmospheres on 30 December 1977 (reference (b)) because the respirator user could overbreathe the device due to low air flow through the air hose into the facepiece. Overbreathing a hose mask with blower results from excessive negative pressure inside the facepiece during inhalation. The negative pressure created during overbreathing causes inward leakage of the surrounding atmosphere into the facepiece through the facepiece seal. The surrounding atmosphere leaking into the respirator is simultaneously drawn into the lungs of the respirator wearer,

Encl (1)



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Encl (1)

which could result in the respirator wearer experiencing adverse health effects.

#### RECOMMENDATION

We recommend revoking the certification of all hose masks and hose masks with blowers since hose masks with blowers only provide 29 to 43.5 percent of the breathing air that Type C supplied-air respirators provide and the mechanism for receiving breathing air from hose masks relies solely on the wearer's lung power.