



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

File - Respirators

Centers for Disease Control
National Institute for Occupational
Safety and Health - ALOSH
944 Chestnut Ridge Road
Morgantown, WV 26505

March 3, 1983

QC - Safety Director
slh

RESPIRATOR INFORMATION NOTICE

ON

3M Powered Air Purifying Respirator
3M, St. Paul, Minnesota
Model Number: W-344
Approval Number: TC-21C-246

Racal Powered Air Purifying Respirator
Racal Airstream, Inc., Frederick, Maryland
Model Number: AH3
Approval Number: TC-21C-212

In a Respirator Information Notice dated November 15, 1982, NIOSH recommended that powered air purifying respirators (PAPRs) with high efficiency filters not be relied upon to consistently provide a workplace protection factor of 1000. That recommendation was based upon the results of the two studies of PAPRs with tight fitting facepieces described in that Notice as well as the additional NIOSH study of helmeted PAPRs described in this Notice.

The NIOSH study of helmeted PAPRs with high efficiency filters was conducted by NIOSH on the 3M W-344 PAPR and the Racal AH3 PAPR at a secondary lead smelter. In this study the challenge aerosols contained lead dust and/or lead fume.

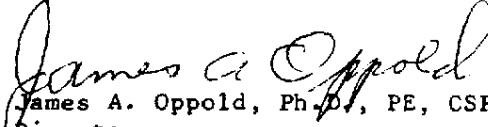
This study produced the following preliminary results. The workplace protection factors associated with both respirator models were found to be approximately lognormally distributed. The results of the t-tests indicate that there is no significant difference ($P < .05$) between the mean workplace protection factors of the 3M and Racal PAPRs under the particular circumstances of these studies. For both the 3M and Racal PAPRs, approximately 98% of the observed workplace protection factors were below 1000. Approximately 95% of the observed workplace protection factors for both the 3M and Racal PAPRs exceeded 33. The geometric mean workplace protection factor for 3M and Racal PAPRs was 182 with a geometric standard deviation of 3.2.

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As stated in the November 15, 1982, Respirator Information Notice, the preliminary results of the NIOSH studies of the MSA, 3M and Racal PAPRs indicate that the protection factor expected from this class of respirators is inappropriately high.

For more information on this subject, contact Glendel J. Provost, Division of Safety Research, NIOSH, 944 Chestnut Ridge Road, Morgantown, West Virginia 26505. Commercial telephone number is (304) 291-4595 and the FTS number is 923-4595.


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