principal component analysis (PCA) model. The PCA model provided a graphical representation of the differences in facial dimensions for gender, race, and age groups. The PCA model was also used to identify typical face sizes/shapes for the development of test head forms. Respirator manufacturers and others can utilize the findings in this study to more appropriately characterize the U.S. work force for their design applications of respiratory protective devices.

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SHOULD FIT TESTING BE PART OF CERTIFICATION? T. Nelson, NIHS Inc., Ardentown, DE; H. Mullins, 3M Company, St. Paul, MN.

When the certification testing for filters was changed to 42 CFR part 84, the fit testing requirement for filters was deleted from the regulation. As noted by NIOSH in the *Federal Register* notice for 42 CFR part 84, "successful fit testing in the certification process provides no assurance that the respirator will properly fit a given worker when used in the workplace. The only means presently available to assess the fit achieved on the worker is a respirator-to-face fit test conducted on that individual with the chosen respirator." Recently NIOSH provided notice that advancements in fit testing made it possible to add a fitting requirement to the certification process. Two major issues for a certification test for face fitting involve the definition of an acceptable criterion and the reproducibility of face fitting tests on a panel of people. Modeling of respirator performance indicates the poorest performing respirator is one where 50 to 70% of the population of users have fit factors less than 100. Repeat measures of fit on panels of people with varying face sizes shows that fit is a highly variable quantity. The high variability of fit makes the separation of "poor" fitting respirators from "good" fitting respirators difficult. It is expected that a fit test panel could have as many as 50% register fit factors of less than 100 and still provide acceptable respirator performance in the workplace.

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OSHA UPATE: RESPIRATORY PROTECTION AGAINST TB AND OTHER BIOLOGICAL AGENTS. M. Sands, U.S. DOL/OSHA, Washington, DC.

This presentation will provide an overview and update of OSHA's enforcement of the Respiratory Protection Standard (1910.134), as it pertains to workers exposed to tuberculosis and other infectious biological agents. Enforcement statistics and recent interpretive guidance will be presented as well as a discussion of OSHA's position on respiratory protection and bioaerosols.

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OCCUPATIONAL EXPOSURES DURING THE PREPARATION OF PSEUDO NARCOTICS FOR CANINE TRAINING. C. Dowell, CDC NIOSH, Cincinnati, OH.

NIOSH received a request for a health hazard evaluation at the U.S. Customs and Border Protection's Canine Enforcement Training Center in Front Royal, Va. The request concerned potential exposures from the preparation of pseudo narcotics.

Seven personal breathing zone (PBZ) air samples were collected for total particulates on workers in the mix room. Nine general area (GA) air samples were collected for total particulates in the mix and package rooms. Two PBZ air samples were collected for acetic acid on workers in the mix room and four GA air samples were collected in the mix and package room. Three GA air samples were collected for benzaldehyde and piperonal and four GA air samples for methyl benzoate in the mix room.

The particulate contained cab-o-sil® and microcrystalline cellulose. All of the total particulate PBZ air samples collected on workers in the mix room exceed the OSHA PEL for particulates not otherwise classified and the ACGIH TLV for cellulose. Their concentrations ranged from 21 to 110 mg/m^3 with an average of 43 mg/m^3. Workers lean forward and place their heads inside drums, scooping out powder near the bottom. This accounts for the high airborne dust concentrations. One of two acetic acid PBZ air samples collected on workers in the mix room exceed the NIOSH REL, OSHA PEL, and ACGIH TLV. This sample was collected on the worker who measures acetic acid. All other air samples collected were below relevant evaluation criteria.

There is a potential for excessive particulate and acetic acid exposure in the mix room of the pseudo drug building. Based on a description of other work activities not directly observed, there is also a potential for respiratory hazards during the chopping of marijuana bales. Recommendations included ventilation improvements, modified work practices, and use of respiratory protection.

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OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE CONSIDERATIONS RELATED TO CASES OF HISTOPLASMOSIS AMONG WORKERS AT A CORN PROCESSING FACILITY. B. King, G. Burr, NIOSH, Cincinnati, OH.

CDC received a request from the Nebraska Health and Human Services System to conduct an investigation of possible cases of histoplasmosis among the employees at a 650-acre corn processing facility in rural Nebraska in February 2004. A site visit was made to address concerns that a second outbreak of histoplasmosis was occurring among the employees at the work site, following one that had occurred in August 2003 in which 43 clinically- or laboratory-confirmed cases were identified. In that outbreak, soil excavated for pipe repair in an area of the facility associated with a large accumulation of bird droppings was a likely cause of aerosolization of *H. capsulatum* spores and thus, the possible site of the employees' exposures. CDC/NIOSH representatives participated in the February 2004 investigation by addressing industrial hygiene and occupational health related issues. This included providing guidance to the company to identify worker activities that may be at higher risk for exposure, the proper use of personal protective equipment (PPE) required for these activities, and recommendations for preventing future outbreaks. CDC/NIOSH representatives conducted a walkthrough of facilities to identify accumulations of bird droppings and discuss job activities and protocols with employees at these locations. We met with the health and safety managers to review a draft plan developed to characterize activities regarding the risk for exposure to *H. capsulatum* spores, and the corresponding PPE that would be required. We also reviewed the adequacy of the written respiratory protection program. Recommendations provided to the company included proper employee training regarding the hazard and the company's policies on the selection of PPE (particularly respiratory protection) for work categorized as higher/lower/minimal risk; excluding birds from entry to buildings by sealing all entry points; updating their written respiratory protection program; and ensuring proper maintenance of building and ventilation systems.

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ISOFLURANE EXPOSURE CASE STUDY: ONE COMPANY'S APPROACH. J. Dunbarr, Chiron Corporation, Emeryville, CA.

The purposes of this case study include (1) measurement of personal and area concentrations where isoflurane is used within the facility, (2) identify trends that may be likely to contribute to increased exposures, (3) identify improvements that can be made within the processes to decrease exposure for employees working around isoflurane, and (4) implementing these improvements into the program and looking ahead to future challenges.

The study was set in our Comparative Medicine Facility and ranges from March 2001 to present. There are approximately 30 employees whom may work with isoflurane at any given time, and 17 rooms within this facility in which isoflurane may be worked with. Many of these employees are working with isoflurane on a daily basis, ranging anywhere from 30 minutes up to four hours, depending on the task. A total of over 100 personal and area samples have been taken within this study. There are eight categories in which sample results have been classified by task. The majority of the work with isoflurane at our facility includes surgeries, injections, blood draws, and microchipping during the studies.

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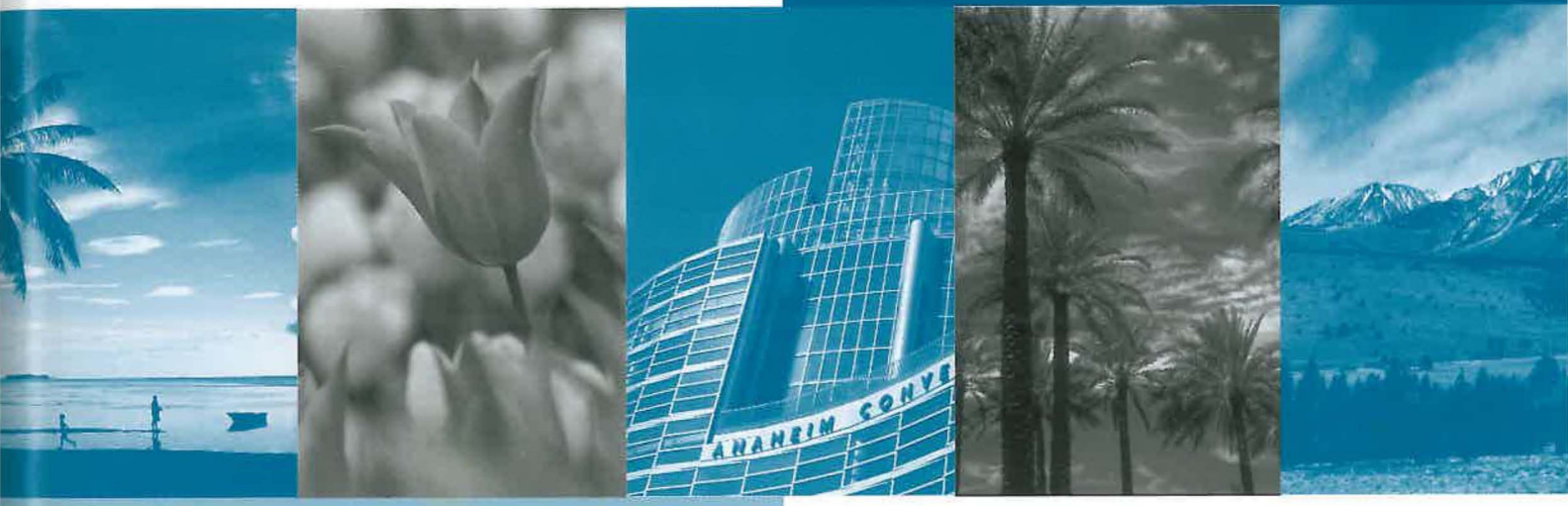

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