243. _____

THE PERFORMANCE OF DIFFERENT ANALYTICAL TECHNIQUES MEASURING QUARTZ IN THE WORKPLACE ANALYSIS SCHEME FOR PROFICIENCY (WASP). P. Stacey, Health and Safety Laboratory, Sheffield, United Kingdom.

This poster will compare the performance of the different analytical approaches for the

rato-
n

cy
i is

the direct on-filter analysis method where the sample is analysed without any sample preparation. Laboratories in other countries prefer an indirect method where the sample filter is removed, and the recovered material is deposited on or in another material with a lower background than the original filter. The poster discusses the last 14 rounds of data from 15 participating laboratories and examines the relative standard deviation (RSD) of results obtained within a laboratory and between laboratories at each measurement level. It was found that the average within laboratory RSD of results submitted by a laboratory over the analytical range 84–430 ?g using an on-filter analysis method was 8.5%. The smaller number of laboratories using indirect techniques in the program produced the most variable data (3–39% RSD) and data from the analysis of a small number of 'real' samples suggests there is little advantage in using an indirect analysis method that is more expensive and time-consuming. A comparison between direct on-filter x-ray diffraction and infrared analysis showed that no significant difference existed between the two techniques.

244. _____

PROFICIENCY ANALYTICAL TESTING PROGRAM (PAT), A LONGITUDINAL DATA ANALYSIS. D. Drolet, C. Dion, IRSST, Montreal, PQ, Canada.

A continuing improvement of our quality assurance program lead us to try to understand our 20-year-long performance in the PAT program looking at trends emerging from a longitudinal analysis. The analyzed data come from the compilation in a database of the results of each round report received from AIHA. For many contaminants, we have examined the following variables over time: relative standard deviation (RSD), percentage of outliers, and their low/high ratio. Relationships between the percentage of outliers and the RSDs were also analyzed as a function of the level of target values (TV).

The decisions taken by AIHA at round 132 to assign a maximum of 20% to the RSD and to determine TV from the results of all laboratories had, for chrysotile fibers, an effect on the number and on the ratio of low/high outliers. Since round 146 (return to the determination of fiber TV from reference laboratories

only), the percentage of outliers did not change significantly but the ratio of low/high outliers became higher, as it was before round 132. When TV are near the lower analytical limit of quantification, we observe an increase of the RSDs, especially for chrysotile fibers and benzene. For trichloroethylene, toluene, or o-xylene, there is no such relationship. A detailed investigation of the database since the beginning could increase the level of understanding of the trends. This could be helpful to identify bias in order to make proper decisions either for the participant laboratory and for the AIHA in the management of the PAT program. The actual data set with assigned RSDs give an unrealistic image of the true situation. This affects the level of knowledge we can extract from the database. The availability of raw data (real RSDs) in this context is therefore essential to improve the study.

Poster Session 402

Papers 245–256

IEQ
Papers 245–256

245. _____

PERSONAL AND ENVIRONMENTAL CHARACTERISTICS, OCCUPATIONAL FACTORS, AND PSYCHOSOCIAL CORRELATES OF SICK BUILDING SYNDROME IN A BIASED AND UNBIASED POPULATION OF OFFICE EMPLOYEES OCCUPYING TWO BUILDINGS IN SOUTH AFRICA. K. Heslop, University of the Western Cape, Cape Town, South Africa.

The pathogenesis of sick building syndrome (SBS) is generally believed to be multifactorial in nature, resulting from the dynamic interrelationship between personal, environmental, occupational, organizational, and psychosocial factors. The aim of the current quasi-experimental research was to investigate personal and environmental characteristics, occupational factors, and psychosocial correlates of SBS, based on a sample of 348 office employees occupying two buildings engaged in the public sector in South Africa. One building was characterized as 'sick' (building B), whilst the other was not a known 'sick' building (building A). Based on the Environmental Quality Survey and symptom checklist, there was a significant difference between the two buildings with respect to the number of symptoms reported. The total number of symptoms (TSBS) recorded in the 'sick' building was almost twice as many as registered in the 'healthy' building, with females reporting significantly more symptoms (p < 0.05). Correlation analysis revealed there was a significant relationship between several personal and environmental characteristics, occupational factors and psychosocial variables, and the total number of symptoms (TSBS) reported by

employees in each building (p < 0.05). Multiple regression analysis revealed these variables significantly explained the variance in the number of symptoms reported in each building (p < 0.01). Employees in building A evidenced lower levels of stress, higher levels of control over the environment, higher job satisfaction, and higher overall environmental satisfaction compared to those in building B (p < 0.05). The associations between these variables and symptoms characteristic of SBS corroborate previous research emphasizing the role of these variables in prevalence and symptomatology displayed.

246. _____

DEVELOPMENT OF A SEMI-QUANTITATIVE MOLD EXPOSURE INDEX FOR EPIDEMIOLOGICAL STUDIES. J. Park, C. Rao, J. Cox-Ganser, R. Boylstein, C. Piacitelli, P. Schleiff, D. Yereb, NIOSH, Morgantown, WV.

Current methods for assessing exposures to indoor mold contamination are problematic. Available sampling methods do not accurately assess mold exposures, especially historical exposures. Visual assessments are common practices in indoor air quality investigations. We developed semi-quantitative environmental checksheets to assess indicators of mold contamination and water damage for use in our indoor air quality investigations.

Industrial hygienists conducted standardized evaluations using the environmental checksheet in 2 hospital buildings and 13 college campus buildings. We evaluated several areas of each room (ceilings, walls, windows, floors, HVAC components, water pipes, and furniture) and scored—on a scale of 0 to 4—each area for water stains, visible mold, mold odor, and signs of current moisture. We then integrated area scores within each room and calculated individual exposure indices by taking into account the time employees spent in each room.

In the hospitals, the evaluated areas had mold exposure indices ranging from 0 to 20. There was little visible mold or mold odors. Signs of stains on ceiling tiles and around windows dominated the indices. The indices were positively associated with work-related lower respiratory symptoms and showed evidence of an exposure-response trend after adjustment for personal factors and reported presence of water-damage and mold in homes.

For the college buildings with a history of water-damage, 20% of the rooms had visible mold; 3% of the rooms in buildings with no known water-damage had visible mold. Positive relationships between work-related respiratory health symptoms and individual exposure indices were found.

The checksheet method may be a valuable tool to assign consistent numerical scoring of mold contamination and water damage for large epidemiological studies of moldy indoor environments.

AIHce 2003 ABSTRACTS

*The Premier Conference
for Occupational and
Environmental Health
and Safety Professionals*

AIHce
NAVIGATING UNCHARTED TERRITORY

aih
ce
**American Industrial Hygiene
Conference & Expo**
Cosponsored by AIHA and ACGIH®

H E C S O

PROMOTING EXCELLENCE

**MAY 8-13, 2004
ATLANTA, GA**

Plan to present an abstract in Atlanta, Georgia!

Obtain a 2004 Call for Presentations, Contact AIHA's Customer Services at (703) 849-8888; fax (703) 207-3561

*All submissions will be made on-line.
Watch the AIHA homepage for the opening announcement!*

Schedule for the 2004 AIHce

October 7, 2003 . . . . .Deadline all AIHce submissions.

October 29, 2003 . . . . .PCC Meeting I.

November 24, 2003 . . . . .Session Arrangers Finalize Podiums

December 3, 2003 . . . . .PCC Meeting II.

Mid December 2003 . . . . .Accept/reject e-mail notice to each submitter.

January 2004 . . . . .AIHce Advance Program mailed.

Mark Your Calendar!

AIHce 2004
May 8–13
Atlanta, Georgia

For more information, contact AIHA's Customer Services at
2700 Prosperity Avenue, Suite 250, Fairfax, VA 22031
(703) 849-8888; fax (703) 207-3561
Visit the AIHce on the Internet (http://www.aiha.org/aihce.htm)

Submissions must be received electronically by October 7, 2003.