reforming of parts used in radiation treatments. The metal alloys that are used in this process contain several metals, including lead and cadmium. A by-product of the manufacturing process is the contamination of environmental surfaces (e.g. floors, counter tops), particularly with lead and cadmium. This causes a potental occupational hazard as exposure to these metals becomes a possibility for workers in the lab. Although air monitoring demonstrates that there are no airborne hazards, routine dust wipes sampling indicates an aggressive build up of both lead and cadmium levels on lab surfaces. Regular cleaning of these surfaces is unsuccessful in removing the contamination, so a special cleaning agent is used to acheive this. Sampling immediately before, immediately after, and several days after the cleaning procedure demonstrates that the procedure is successful in decontaminating surfaces in the lab, thus controlling the build up of lead and cadmium dust and possible employee exposure.

137.

LEAD IN HOUSEHOLD PAINTS IN INDIA. C. Clark, R. Clark, University of Cincinnati, Cincinnati, OH; V. Thuppil, G. Menezes, H. D'Souza, St. John's Medical College, Bangalore, India; S. Sinha, Awengaia Environmental Consultants, Bangalore, India; N. Nayak, A. Kuruvilla, Kasturba Medical College, Mangalore, India; P. Dave, S. Shah, Sardar Patel University, Vallabh Vidyanagar, India.

In a 1999 blood lead survey of 23,000 children and adults in 7 cities in India, 53% of children under 10 years of age were found to have levels of 10 µg/dl or higher, the current U.S CDC limit. In a recent report on sources of childhood lead poisoning in countries such as India, the nine major sources listed: lead gasoline, lead-glazed ceramics, mining and smelting, battery repair and recycling, cottage industries, flour mills, medication and cosmetics, and consumer products. It did not include lead in paint. A recent report, however, indicates that an estimated 10% of the lead in India is reported to be used in making paint. In 1999, an examination of a selection of 24 new paints available for purchase in India found that four had lead concentrations exceeding 0.5% lead by weight (the U.S. limit for paint in housing) and one contained more than 10% lead. Information could not be located on the lead content of paint in housing in India. The availability of field portable X-Ray fluorescence analyzers with a Cd^{109} source provided an opportunity to examine the residential environments of 10 children with blood lead levels of 40 µg/dl and higher, and to again measure the content of new paints. In one half of the residential environments, three or more locations measured had lead levels of 1.0 mg/cm² or higher, levels considered "lead-based paint" in the U.S. Overall, about 10% of the surfaces tested had levels of 1.0 mg/sq cm or higher. Other sources of lead exposure observed were lead storage batteries and traditional medicine. In new paints tested, almost one-third measured 1.0 mg/sq cm or higher after the application of three coats. Similar surveys would be useful elsewhere in India and in other developing countries.

138.

ASSESSMENT OF KNOWLEDGE OF POPULATION ABOUT HARMFUL INFLUENCE OF LEAD ON ORGANISM OF CHILDREN AND ADULTS. E. Babayan, R. Hovanesyan, A. Aleksandryan, G. Aleksandryan, V. Kafyan, Institute of General Hygiene and Occupational Diseases, Yerevan, Armenia; L. Saryan, Aurora Consolidated Laboratories, West Allis, WI.

Aim: To develop a plan to prevent lead poisoning.

Materials and Methods: Atomic absorption spectrophotometry was applied to analyze samples of air, soil, dust settled on internal surfaces, and working clothes. "Stata" program was applied for quantitative analysis.

Results: Research carried out at two manufacturers of lead crystal and crystal products showed that the industrial ambient environment is polluted with lead. In the majority of cases lead exceeded permissible levels. Blood lead analyses of 259 children and 47 adult inhabitants at the polluted sites, and also 143 workers from crystal factories, revealed that at one settlement the blood lead level of 18.7% of children achieved 10–20 mcg/dL. At the other locality this level exceeded 43.7% of the children surveyed, and in 3.7% the level exceed 20 mcg/dL. Blood lead level in workers ranged 15–89 mcg /dL (in 21% above 60 mcg/dL). In children the level of protoporphyrin was normal, but in the majority of workers it reached 220–529 mcg/dL. Questionnaires and interviews administered to assess the level of knowledge of parents of children, workers exposed to lead, teachers, and neighborhood medical personnel about lead indicated a low degree of awareness. The analysis of this data by "Stata" program showed a positive correlation between the presence of a factory worker in a family and the level of lead in blood of children (OR = 13). Correlation (OR = 3; P =0.014) of socioeconomic status and level of knowledge about lead was revealed. To reduce the impact of lead and to prevent lead poisoning in children, an educational program for parents and personnel at schools and polyclinics was developed. A special program for worker training, covering technical and hygienic actions at lead-using enterprises for the prevention of harmful influence of lead, was developed.

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139.

EXTRACTION AND QUANTIFICATION OF VIABLE FUNGAL PARTICLES FROM HVAC FILTERS AS INDICATORS OF RELATIVE AIRBORNE LEVELS IN BUILDING AIR. H. Perez, N. Zimmerman, Purdue University, West Lafayette, IN.

While it is known that airborne fungi and their spores are associated with hay fever, asthma, and hypersensitivity pneumonitis, a universally accepted method to accurately detect and quantify this contamination is lacking. The purpose of this research was to develop a method of evaluating building HVAC filters for viable fungal contamination levels. This evaluation was performed through (1) the loading HVAC filters with known concentrations of fungal spores, (2) the extraction and quantification of these previously loaded fungal spores, and (3) the comparison of the estimated number of spores loaded with the estimated number of spores recovered. A ventilation test chamber consisting of a length of 2' x 2' square ducting was used to load the filters evaluated in this research. Filters were loaded with a fungal spore aerosol generated through the use of respiratory therapy nebulizers. The nebulizers were filled with an *Aspergillus niger* spore suspension. The concentration of viable spores in the suspension was determined through serial dilution. The quantification method used to determine the fungal load on the filters involved the removal of small samples from the filter, the immersion of these samples in sterile saline, the shaking of the filter/saline combinations, and the subsequent plating of aliquots of the shaking solution onto potato dextrose agar.

The results of this research indicate that the generation of fungal spore aerosols of known concentrations through the use of respiratory therapy nebulizers may become a very useful method in bioaerosol research. The results also indicate that viable fungal particle recovery and quantification from HVAC filters is possible and may become a useful method for the evaluation and comparison of building areas served by separate HVAC systems. This method may also be a useful tool for the evaluation of a single building or building area before and after remediation efforts.

140.

EVALUATION OF AIRBORNE SAMPLING AND ANALYSIS DATA BY QUANTITATIVE REAL-TIME PCR (QPCR): ITS IMPLICATIONS FOR THE INDUSTRIAL HYGIENIST. D. Kahane, Forensic Analytical, Hayward, CA.

Industrial hygienists are routinely called upon to make recommendations regarding mold investigations. These decisions are based on a combination of quantitative and qualitative data

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