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Occupational and Environmental Exposures of Skin to Chemicals - 2005

Abstract for Poster 65

Development of colorimetric indicators: a new technique to determine acid, base, and aldehyde contaminations

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The objective of the study was to develop new colorimetric indicator pads for detecting acid, base, and aldehyde permeation through chemical protective gloves. Each indicator pad carries a reagent, which responds to the appropriate chemical contaminant by producing a color change. Acid, base, and aldehyde indicators were synthesized and indicator pads were designed and fabricated. Assessment of the stain sensitivity and stability of each indicator was determined using the modified ASTM F-739 and/or direct spiking of appropriate chemicals on the indicator pads. Interference testing was also performed by spiking test chemicals on the indicator pads. The indicator pads were used to detect the appropriate chemical group permeating through the glove materials using the Thermo-Hand method. The Thermo-Hand method was developed to evaluate indicator pads for chemical permeation through protective gloves under simulated in-use conditions. Breakthrough times for commonly used chemical protective glove materials were determined. Quantification was performed for test chemicals by gas chromatography following solvent desorption. Some example laboratory results of this research will be described. The newly developed pads have been used for laboratory testing only and are not commercially available. However, with further development and field studies, the indicator pads could find utility in detecting, collecting, and quantitatively analyzing chemical permeation in both the liquid and vapor phases.

Content last modified: 20 May 2005

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The National Institute for Occupational Safety and Health (NIOSH) and the Karolinska Institutet in cooperation with the Stockholm County Council are taking the lead in organizing this conference. NIOSH is maintaining this website.

Disclaimer: Co-sponsorship of the conference and workshop and posting of abstracts and workshop discussion papers (white papers) on a website by NIOSH does not constitute endorsement of the views expressed or recommendation for the use of any commercial product, commodity or service mentioned. The opinions and conclusions expressed are those of the authors and presenters and not necessarily those of NIOSH. Recommendations are not considered as final statements of NIOSH policy or of any agency or individual who was involved. These presentations are intended to be used in advancing knowledge needed to protect workers and the general public.

Menu items on the left provide more information about OEEESC-2005.

This conference follows the success of the first [International Conference on Occupational and Environmental Exposures of Skin to Chemicals: Science and Policy](#), which was held near Washinton, DC, in September, 2002.

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