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Evaluation of airborne asbestos exposure from routine handling of asbestos-containing wire gauze pads in the research laboratory

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Highlights

- Wire gauze pads (heating media) were measured and found to be comprised 75%–85% chrysotile asbestos.
- Routine use of pads generates levels of airborne asbestos below regulatory levels.
- Asbestos was not found in personal breathing zone samples.
- Repeated heating of wire gauze pads may reduce asbestos content over time.

Abstract

Three independently conducted asbestos exposure evaluations were conducted using wire gauze pads similar to standard practice in the laboratory setting. All testing occurred in a controlled atmosphere inside an enclosed chamber simulating a laboratory setting. Separate teams consisting of a laboratory technician, or technician and assistant simulated common tasks involving wire gauze pads, including heating and direct wire gauze manipulation. Area and personal air samples were collected and evaluated for asbestos consistent with the National Institute of Occupational Safety Health method 7400 and 7402, and the Asbestos Hazard Emergency Response Act (AHERA) method. Bulk gauze pad samples were analyzed by Polarized Light Microscopy and Transmission Electron Microscopy to determine asbestos content. Among air samples, chrysotile asbestos was the only fiber found in the first and third experiments, and tremolite asbestos for the second experiment. None of the air

samples contained asbestos in concentrations above the current permissible regulatory levels promulgated by OSHA. These findings indicate that the level of asbestos exposure when working with wire gauze pads in the laboratory setting is much lower than levels associated with asbestosis or asbestos-related lung cancer and mesothelioma.