

Abstract #: 337

Presented by: Garrick Johnson, MS, Graduate Student

The Effects of Fungal Growth on Phthalate Ester Emissions from pPVC

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Keywords: Phthalates, fungal growth, plasticized PVC, exposure assessment

Objective: The purpose of this research was to attempt to determine the effects of fungal growth on the phthalate ester constituents of the plasticized PVC (pPVC) film component of metal building insulation used in a large book warehouse. We also investigated the potential exposure implications on the workers in the building.

Methods: Individual 232 cm² pieces of the pPVC film that were clear of fungal growth and pieces that had fungal growth were collected from the building being investigated. A chemical analysis of the phthalate ester content was then performed on the pieces by solvent extraction followed by analysis of the extract using a GC/MS technique. The mass of phthalate ester content in a sample set of 25 pieces each of the clean pPVC film and pPVC film with fungal growth collected was statistically compared. The results of the chemical analysis were then used to model the potential increased exposure the fungal growth may contribute to the occupants of the building by determining a worst case exposure scenario and comparing that to published exposure data in similar settings.

Results: The results of the chemical analysis showed that there is a statistically significant difference between the clean pPVC film and pPVC film with fungal growth for all four phthalate esters investigated. The results also showed that the mean content of all four phthalate esters was lower in the pieces that had fungal growth. The mean content will be used for exposure assessment modeling purposes, which is still being investigated.

Conclusion: The presence of fungal growth is related to lower phthalate content in the pPVC film. Our plan for future investigation of this problem is to use the collected data for exposure assessment modeling.

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Presented by: Julie Lanz, MS, Graduate Student

Predictors of Resilience

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Keywords: Resilience, personal control, personality, coping skills

Objective: Resilience is defined as a characteristic of positive psychology (Wagnild & Young, 1993) that facilitates “positive adaptation in the context of significant risk or adversity” (Ong , Bergeman, & Boker, 2009, p. 1777). Interventions (e.g. the Comprehensive Soldier & Family Fitness Program by the Army) aimed at increasing resilience are valuable for individuals that have faced traumatic experiences. This study expands the research of resilience by integrating personal control and supervisor support into the resilience process to explain why individuals are able to overcome difficult situations.

Methods: Two hundred and twenty eight U.S. participants were recruited using mTurk (56.8% female). Participants worked between 20 and 80 (M=39.4, SD=9.76) hours per week. The constructs of resilience (Wagnild & Young, 1993), personality (Goldberg, 1999), coping skills (Carver, 1997), perceived supervisor support (Eisenberger et al., 2002) scale, and personal control (Paulhus, 1990) were measured.

Results: A hierarchical regression examined the impact of emotional stability, extraversion, conscientiousness (Step 1; R² = .40), coping skills (Step 2; R² = .47), and perceived supervisor support and personal control (Step 3; R² = .56) on resilience. All variables significantly predicted resilience except for perceived supervisor support (β = .01, p = ns).

Conclusion: Exploring the impact of personal control (i.e. personal efficacy) and perceived supervisor support are novel contributions to research on resilience, and suggest that personal control is a significant predictor of resilience above and beyond other protective factors (personality and coping skills).



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