THE CITY OF NEW YORK

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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Summary: Environmental Investigation of Chemical Ingredients of Moisture Cure Urethanes Used as Wood Floor Coatings

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In response to community concerns about potential health effects of moisture cure urethanes (MCUs) used to coat wood floors, the Department of Health and Mental Hygiene conducted an investigation to assess potential exposures of MCU chemicals and to recommend interventions.

Moisture Cure Urethanes: Ingredients and Health Effects

Moisture cure urethanes contain volatile chemical solvents and curing agents, and urethane polymers. Xylene, ethylbenzene, and acetates are typical solvents; toluene diisocyanate (TDI) is a common curing agent. The volatile chemicals evaporate during MCU application and curing. The hardened MCU coating is considered inert and non-hazardous but may continue to release volatile chemicals for some time after the floor can be used.

- Exposure to MCU chemicals can lead to health effects depending on the level and duration of exposure. Brief exposures to elevated levels can result in headaches, respiratory irritation, and exacerbation of asthma; while very high and/or long-term (e.g. lifetime) exposures can lead to organ damage, reproductive effects, chemical allergies, and possibly, cancer.
- No environmental standards exist for these chemicals; however, there is information from occupational and animal studies on the health effects.

Investigation Methods

The following was done to investigate moisture cure urethanes:

- Review of product information and scientific literature on health effects of MCU chemicals.
- Short term air monitoring for MCU chemicals in apartment building during application of MCU coating.
- Area samples taken in common hallways, an occupied apartment, and rooftop. No monitoring was done in apartments where MCU was applied.

Results and Conclusions

- There were noticeable odors throughout the apartment building.
- Xylene and ethylbenzene were found at higher levels in the common hallways than in the occupied apartment. TDI was detected only in common hallways.
- Chemicals present in the common hallways may cause irritation of the respiratory system, exacerbation of asthma in some individuals, and headaches. Serious or permanent health effects are not expected.

Recommendations

- Consider using less volatile and less hazardous materials; provide increased ventilation to reduce chemical vapors and odors during MCU application.
- Inform residents prior to use of MCU products in an occupied building.
- Provide protection and training for workers applying moisture cure urethane coatings.