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From: Meredith Brown <racer@lanl.gov>
Subject: Yellow Alert: Chemical Storage Near Miss

Title: Spill Leads to Chemical Storage Changes

Identifier: 1999-LA-LANL-ESH7-0016 Date: 09/28/99

LESSONS LEARNED: Storage shelves on refrigerator doors may not provide adequate support for chemical containers, and shelves can be damaged by oversized containers, causing them to fail and allow items to fall out when the refrigerator is opened. To ensure that refrigerated chemicals are stored on a stable surface, consider prohibiting use of door shelves or limiting the size of containers that may be stored on door shelves.

DISCUSSION: A 1-liter glass bottle of methyl acrylate fell out of a refrigerator and broke on impact with the floor when an employee opened the refrigerator to retrieve hazardous waste chemicals for disposal. As a precaution, part of building was evacuated to prevent employees from being exposed to the chemical fumes. A short time later the area incident command was activated and the entire building along with an adjacent building was evacuated. Assistance was requested from the site's Hazardous Materials Team and the Emergency Management and Response team was notified. Six employees in or near the room, or involved in response activities were subsequently evaluated for chemical exposure. None of the employees required medical attention.

The employee saw the bottle of methyl acrylate begin to fall as she opening the refrigerator door and she tried to close the door, but the bottle fell out and shattered on the floor. Methyl acrylate splashed onto the employee's shoes and pants. The employee, who did not know what the chemical was, instructed that other two employees in the room to evacuate and to notify the facility's operations center.

Responders entered the room in Level B personal protective equipment and self-contained breathing apparatus to monitor for combustible vapors and identify the chemical. The broken container was examined and the chemical was identified as methyl acrylate. The Hazardous Materials Team cleaned up the spill, and the buildings were reoccupied except for the room where the spill occurred and an adjacent room that were cordoned off for further cleanup.

After the incident, the door shelf was inspected and the bar that is supposed to be installed across the shelf was found on an interior refrigerator shelf. The refrigerator is used to store chemical waste as well as chemicals that are still in used. Apparently the bar popped off some time after the bottle of methyl acrylate was placed on the door shelf because the bottle was too large for the shelf.

The organization taped off the refrigerator door shelves and posted the refrigerator to prevent employees from placing chemical containers on the door shelves. Employees are now required to place chemical containers in trays on shelves inside the refrigerator.

Consideration is being given to replacing refrigerators that have door storage with refrigerators that have no door storage, or to replacing the shelved doors with shelfless doors. The organization also established a procurement standard specifying that refrigerators used for chemical storage will have no

door shelves.

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DOE FUNCTIONAL CATEGORY: Occupational Safety & Health

WORK ACTIVITY: Material Handling

HAZARDS: Hazardous Materials

KEYWORDS: chemical, storage, refrigerator

REFERENCES: ALO-LA-LANL-TA55-1999-0032

FOLLOW-UP ACTIONS: Information in this report is accurate to the best of our knowledge. As a means of measuring the effectiveness of this report, please contact the originator of significant action(s) taken as a result of this report or of any technical inaccuracies you find. Your feedback is appreciated.