

Aerosol Can Seam Failure Results in Content Dispersal within Storage Cabinet

Priority Descriptor: Yellow / Caution

Lesson ID: 2011-LANL-CMR-2011-0002

Originator: Los Alamos National Laboratory

Date: August 16, 2011

Statement: Aerosol cans of NoCount® Radioactive Decontamination Surface Cleaner that DO NOT have a two-year expiration date printed on the label may rupture unexpectedly. Suspect cans should be immediately removed from service using appropriate hazardous material disposal methods. Aerosol cans of NoCount that DO have a two-year expiration date printed on the label should also be removed from service immediately upon their expiration using appropriate hazardous material disposal methods.

Discussion: On July 6, 2011, at approximately 1000 hours, a Chemistry Division Actinide Analytical Chemistry (CAAC) Technician discovered two (2) ruptured aerosol cans in a chemical storage cabinet while performing normal work activities. The two cans failed along the seams (around the top and bottom, and a vertical seam on the side), releasing all contents. The Technician noted that no co-located objects or chemical storage containers were negatively impacted due to the can failures.

According to the Material Safety Data Sheet (MSDS) for the NoCount product, the contents are not flammable and may pose only a temporary irritation hazard from direct contact. Chemistry and Metallurgy Research Division (CMR) subject matter experts determined the immediate potential hazard from the NoCount can seam failures would have been damage to co-located chemical bottles or containers within the storage cabinet, or personnel injury should a can fail while being held and/or in use.

The LANL ChemLog records reflect that the NoCount product at CMR had been entered into the system in 2007; indicating an age of at least four (4) years (but could be older). The can labeling includes an embedded manufacturing date (that is not obvious to the consumer), but no expiration date.



Resultant of this event, the CMR facility operations director contacted the manufacturer, Decon Labs, Inc., regarding any information they had on similar incidents and received the following information.

A letter from Decon Labs, Inc. to customer Merck regarding complaints of rusted, ruptured cans, dated October 18, 2007, stated the following: *"Investigation of the rusted, ruptured cans of NoCount Surface Cleaner...concluded that the root cause of the rust and rupture was that the product's ingredients separated out over time. Although the product itself is stable, it was found that water based products like NoCount over time, will separate if not used. It was determined that the water precipitate causes the aluminum can to rust and rupture. Our evaluation of the two year retained samples in the aluminum cans indicated the NoCount remains blended in the cans for two years with no rust. Since our retains are kept for only two years, expiration dating has been updated and is now two years after the manufacturing date and will be clearly marked on each can. Due to the small percentage of complaints that involve only cans of NoCount over 2 years from the date of manufacturing, no recall was required."*

Note: Although the above quote (taken from a cover letter to a formal report) references the product can material as aluminum, the formal report states that the can material is tin plated steel. The failed cans at the CMR facility had a red corrosion on the interior of the can, indicative of a tin plated steel material.

Actions:

1. The Associate Directorate for Chemistry, Life & Earth Sciences (ADCLES) verified the NoCount aerosol cans inventory by technical area and determined the disposition path forward (gathering, rendering safe, and disposition plan).
2. All use of aerosol cans of NoCount at CMR was suspended pending further action/review by the FOD and the Responsible Associate Director.
3. A CMR Safety Plan was developed to manage the potential hazard.
4. All handling of NoCount cans at CMR was restricted.
5. CMR staff will continue to look for NoCount cans in the facility and post the locations to prevent inadvertent handling of the cans.
6. The LANL Hazardous Materials (HazMat) Team removed the cans from CMR.
7. All LANL FODs were notified of the potential hazard from NoCount cans and an extent of condition occurred to identify other locations where the product was used/stored.
8. Identified cans of NoCount at another Technical Area were disposed of by the LANL HazMat Team.

References: ORPS NA--LASO-LANL-CMR-2011-0002

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