

Date: January 29, 1999

Subject: **Ames Yellow Alert: Rubidium Fire During Transfer**

Lessons Learned Statement: Extra precautions need to be taken during the transfer of reactive materials from an inert glovebox to a processing hood.

Events: On January 6, 1999, a researcher looked into an inert atmosphere glovebox and observed that the canning jar used to contain the scrap ampoules from rubidium samples had a crack in it. The researcher capped the canning jar, wrapped it in aluminum foil, placed it in a metal tray, and processed the jar out of the glovebox. The intent was to transfer the material to a hood to affect a slow oxidation of residual rubidium by immersion in a heavy alcohol. As the jar was carried the four feet to the hood, a flash occurred in the jar, and the startled researcher dropped the jar and tray. As the researcher recovered the tray and jar, the room filled with smoke. The tray and jar were put into the operating hood, but the smoke had reached a smoke detector, activating the fire alarms and effecting the evacuation of the building and the dispatch of the fire department.

The process was over by the time the fire department had arrived, and ventilating the room was the only task that remained. The building was re-occupied shortly after.

Evaluation: Typically, the transfer of a closed jar presents no problem, however the crack in the glass may have permitted air to reach the reactive material. It is suspected that an ampoule with trace cesium may have been mistakenly placed in the rubidium scrap jar. Cesium is more reactive, and may have been the initiator of the event.

Recommendations: The jars may be sealed in a plastic bag while in the inert atmosphere of the glovebox, providing an inert cover during the transfer to the processing hood. This would be particularly advisable where the integrity of the jar was questioned.

If you have any questions or comments, please contact G.P. Jones at 294-4161.