

Adverse Chemical Condition Recovery Plan

Following provides the documented recovery plan to respond to the adverse chemical condition found in the 331 Building, Lab 304.

The four liter bottle containing 1 -2 liters ethyl ether (as identified by the manufacturer label) is located in the flammable liquid storage cabinet on the south side of the lab.

Conditions to be present during the procedure:

1. The corridor and all associated laboratories will be evacuated and staff members in the locale vicinity will be made aware of the activity to take place.
2. Staff members involved in the activity will be aware of the location of the safety shower and fire extinguisher and a clear path will be made.
3. Near by ignition sources will be removed or isolated.
4. Two staff members will be staged outside to lab for emergency assistance.
Two Hanford Fire Department will be staged outside in level 3 PPE.

Note: If conditions are different that expected and discussed during the planning meeting, the work will not proceed. Unexpected conditions may include: presence of undissolved crystals, ethyl ether is viscous, or if bubbling occurs when the bottle is inverted in the ferrous sulfate solution.

Materials Required:

Personal protective equipment as required in the Workplace Exposure Assessment, 5% Ferrous Sulfate solution, bucket, fume hood, test strips.

Procedure:

1. Only two staff members will be allowed in the lab during the activity.
2. A flashlight will be used to re-evaluate the condition of the bottle and ethyl ether chemical in the bottle. If the undissolved crystals are noted or the chemical appears viscous, the work activity will be stopped. The chemical will be left in the cabinet, the doors of the flammable liquid storage cabinet will be closed and staff will leave the lab.
3. A 5% solution of ferrous sulfate will be prepared in a container and situated in the fume hood in the lab.
4. The 4-liter bottle of ethyl ether will be carefully removed from the cabinet to the fume hood.

5. The flammable liquid storage cabinet will be closed.
6. The 4-liter bottle of ethyl ether will be slowly inverted and placed in the ferrous sulfate solution and soaked for 10 minutes. If bubbling occurs when the bottle is placed in the ferrous sulfate solution, the staff members will immediately leave the lab.
7. The 4-liter bottle will be removed from the ferrous sulfate solution.
8. The ethyl ether will be checked for peroxides using test strips by treating the test strip and placing it inside the cap, if possible.
9. If the test strip verifies the absence of peroxides, the cap will be removed when moisture is present at the cap interface.
10. The ethyl ether will be checked for peroxides using the test strips.
11. If peroxides are present, the ethyl ether will be treated with the ferrous sulfate solution.
12. After the absence of peroxides is verified, the cap will be replaced and the bottle will be placed in proper storage.

This adverse chemical condition was prepared with the input of Steve McDuffie, Doe-RL Facility Rep.; Todd Grabner, FSR; Andy Minister, Facility Safety; Gregg Bartel-Bailey, Waste Management; Shelly Grohs, FSR Manager; Sue Golladay, Molecular Biosciences Department Administrator; Tom Moon, Waste Management; Paul Gaither, Building Manager; Abby Nicholson, Industrial Hygiene.

Additional input was provided by: Kathy Poston, Operations Manager EMS; David Higby, Operations Manager EHSD; Sharon Dossett, Manager EH&S; Representatives from the Hanford Fire Department, HazMat Team; Bill Samuels, Chemist, Joel Pounds, Technical Resource Manager EHSD; Harold Kjarmo, Operations EHSD; Kathy Poepple, Waste Management.

American Burdick & Jackson manufactured the chemical. Steve Mills, Safety Manager for the chemical manufacturer was contacted and verbally concurred with the procedure.

PNNL Chemist, Larry Morgan was also contacted. Larry Morgan was a former HazMat member for Benton County.

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