10.8 Mercury Metal Analysis

Procedure for the examination of mercury metal

Warning:

Mercury is extremely toxic!! It may be absorbed through the skin. Extreme caution should be used when handling mercury metal. Mercury salts formed in analysis are also toxic and are easily inhaled in a powder form.

Work must be performed in a chemical fume hood. Analysts must wear nitrile or latex gloves and a lab coat, along with any other appropriate protective equipment.

10.8.1

Place a small amount of suspected mercury or solution containing suspected mercury in a test tube using a pipette.

10.8.2

Add a drop of concentrated nitric acid. HgNO3 will precipitate at the bottom of the tube. If metallic mercury still appears to be present add addition HNO3.

10.8.3

Remove a small amount of precipitated HgNO3 with a stainless steel spatula and transfer to a microscope slide. Add a few drops distilled H2O and allow salt to dissolve. Dry slide on hot plate for approximately one hour.

Warning: The heating of mercury or mercury compounds will liberate hazardous vapors. Therefore, all heating operations must be performed within a chemical fume hood

10.8.4

Remove a small portion from center of dried HgNO3 and mount on SEM stub for SEM/EDS analysis.

Remove a second portion from this area for infrared spectrophotometery *(Refer to Appendix 10.8 A: Infrared Spectra of HgNO3)*.

Note: EDS analysis is preferable as spectra for HgNO3 has many similarities to other nitrate salt spectra.

10.8.5

All slides, tubes and SEM stubs, etc. must be packaged and disposed of in a safe manner.

All mercury and mercury contaminated materials must be properly labeled, packaged, and stored per the requirements of the FSD Waste Disposal Program (SM-5).