

# Application Note - Mercury Digestions of Water

## **Introduction:**

The following is a condensed version of the digestion procedure for mercury using the **SCP SCIENCE** plastic **DigiTUBE**s on the **DigiPREP** block digestion system. The procedure is based on EPA Methods 245.1 and 7470. This method is applicable for aqueous samples and TCLP extracts. Only the sample preparation steps are outlined below.

## **Sample Type:**

Water

Sample weight: 20 ml

## **Sample Preparation Procedure:**

- 1) Add 20 ml of well mixed sample, blank, duplicates, spikes, and standards to their individual tubes, or 18 ml of TCLP extract and 2 ml of water.
- 2) Add 0.5 ml of concentrated nitric acid.
- 3) Add 1.0 ml of concentrated sulfuric acid.
- 4) Mix thoroughly.
- 5) Add 3 ml of 5% KMnO<sub>4</sub> and let stand for 15 minutes. If sample does not maintain purple or brown color, add additional 2 ml of KMnO<sub>4</sub> solution to all samples, blanks, and standards. If the sample still does not maintain color, discard set and dilute the sample prior to digestion.
- 6) Add 1.6 ml of 5% persulfate solution.
- 7) Place lid on tube with a small opening to allow pressure to vent but minimizing evaporative loss. Screw down the blue screw top cap to tightness. Back the cap about half a turn loose to vent.
- 8) Digest the sample for 2 hours at 95 +/- 1°C.
- 9) Remove samples and let cool to room temperature.
- 10) Add 1 ml of 12% sodium chloride/hydroxyl amine hydrochloride solution.
- 11) The samples are now ready for analysis.

## **Calibration Bank and Standards:**

- Run standards and blanks as above, every 10 samples should have a spiked sample run.
- The **DigiPREP**'s temperature must read 95°C.
- EPA no longer requires Digestion on Calibration Blanks and Standard or ICV. One still must digest Lab fortified blanks (standards) and a LCS unknown lab control standard.

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