CHROMIUM, Hexavalent, in Settled Dust Samples 9101

Cr(VI) MW: 52.00 CAS: 18540-29-9 RTECS: GB6262000

METHOD: 9101, Issue 1 **EVALUATION: Not Applicable** **Issue 1: 15 May 1996**

PURPOSE: Estimation of soluble hexavalent chromium content of settled dust.

LIMIT OF DETECTION: **1 µg Cr(VI)** per sample

FIELD EQUIPMENT:
1. Chromate (Diphenylcarbazide reagent) test kit (Chemetrics Chromate Kit, or equivalent)
2. Sulfuric acid, 20% w/v (included in test kit)
3. Extraction solution, 2% NaOH/3% Na_2CO_3 in deionized water
4. Deionized water
5. Centrifuge tubes, 15-mL, graduated, clear plastic with screw-caps, disposable
6. Spatula, ~0.1 cm^3 capacity
7. pH paper

PROCEDURE:
1. Place 1 spatula full of dust (approximately 0.1 cm^3; the size of a small pea) to be tested in a 15-mL clear plastic centrifuge tube. Add extraction solution up to the 2-mL mark. Cap the tube and shake vigorously.

2. Allow the tube to stand for 10 minutes, or longer, with occasional shaking.
   NOTE: Gently heating the tube in hot water will increase the sensitivity of the test.

3. Uncap the centrifuge tube and add deionized water to the 7-mL mark. Mix and allow the residue to settle.

4. Decant or pipet approximately 3 mL of the supernatant liquid into a second tube.
   NOTE: The sample may be filtered, if excessively turbid.

5. Add 9 drops of 20% sulfuric acid (3 drops /mL of decanted liquid), cap the tube, and invert to mix the contents.

6. Check the pH of the liquid with pH paper. If necessary, add 20% sulfuric acid dropwise to bring to pH <1.

7. Follow the instructions for color development.

NOTE: For more accurate determination of total hexavalent chromium in the dust, send a sample to the laboratory for analysis by Method 7600 or 7604.

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