



# Chemical Fact File®

## Chromium, hexavalent — NIOSH 7600 and 7604

NIOSH Methods 7600 and 7604 can both be used to determine soluble or insoluble chromates. The only difference in the two methods is the method for analyzing the sample.

### Required Equipment:

1. An **air sampling pump** capable of sampling at the recommended flow rate with the sampling medium in line, such as:
  - SKC Universal Sampler
  - SKC AirChek® 2000 Sampler
  - SKC AirChek XR5000 Series Sampler
  - SKC AirChek 52 Sampler
2. An **air flow calibrator**, such as:
  - Defender Primary Standard Calibrator Cat. No. 717 Series
3. SKC **Preloaded Filter Cassette** Cat. No. 225-802
4. SKC **Filter Cassette Holder** with flexible tubing Cat. No. 225-1

### Optional Equipment:

1. SKC **Cassette Sealing Bands** Cat. No. 225-25

### SKC Application Guides:

1. Sampling Train — Filters and Cyclones, #1166
2. Calibrating a Pump Using an Electronic Calibrator, #1366

	TWA
Flow Rate	1000 ml/min
Sample Time	4 hours
Air Volume	240 liters
NIOSH REL	1 µg/m <sup>3</sup> (10 hours)

(NIOSH Manual of Analytical Methods [NMAM], Fourth Edition, 8/15/94)

### Sampling and Analysis:

1. To set up a filter cassette sampling train, select a preloaded filter cassette, seal it with a sealing band (optional), insert the filter cassette into the filter cassette holder with the cassette inlet facing down, and remove the inlet and outlet plugs. Connect the fitting on the end of the rubber tubing of the filter cassette holder to the filter cassette outlet. With the flexible tubing provided, connect the filter cassette holder to the pump inlet. *Request SKC Application Guide #1166 for more information on preparing filter sampling trains.*

2. For calibrating the pump, use the sampling train described above and connect the inlet of the filter cassette to the calibrator with flexible tubing. Calibrate the pump flow rate to the rate specified in the method. When calibration has been completed, remove the filter cassette, reinsert the plugs, and save the filter cassette for recalibration at the

end of sampling. *Request SKC Application Guide #1366 for more information on calibrating a pump.*

3. For sampling, set up a sampling train as above except use a new filter cassette and do not remove the inlet plug on the filter cassette inlet until ready to sample. The inlet of the filter cassette should be facing down. Attach the cassette holder clip to a worker's collar and the pump to the worker's belt. Remove the filter cassette inlet plug and turn on the pump.

4. Sample at an accurately known flow rate for the recommended period of time.

5. At the end of the sampling period, turn off the pump and note the ending time. Remove the filter cassette, cap the inlet and the outlet of the cassette with the plugs provided, and record any pertinent sampling information.

6. Calibrate the pump with the representative sampling media in line to verify that the flow has not changed by more than 5%.

7. Submit field blanks from the same lot number as the sample filters. Field blanks should be subjected to exactly the same handling as the samples (load, seal, and transport) except that no air is drawn through them.

8. Pack sample filters, field blanks, and all pertinent information securely for shipment to a laboratory for analysis.

### Storage:

Remove the filter from the cassette within 1 hour of sampling and place it in a vial to be shipped to a laboratory. Analyze the sample within 14 days of collection.

### Analyzing Method:

NIOSH 7600: Visible absorption spectrophotometry (VAS)  
NIOSH 7604: Ion chromatography - electrolytic conductivity detector (IC-ECN)

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