

APPLICATION NOTE

T2O-AN-257

CHROMIUM (VI) METHOD

The following application note explains the procedure for the detection of Chromium (VI) using the HM2000 Metalometer.

PLEASE READ THIS APPLICATION NOTE CAREFULLY. TRACE2O[®] HAS ALTERED THE NAMES OF SOME REAGENTS FOR SIMPLICITY AND SO THE PROCEDURE MAY BE DIFFERENT FROM THAT FOLLOWED PREVIOUSLY.

Equipment:

- HM2000 Kit
- Cr (VI) vial
- 16mm vial adapter
- HT22 Chromium Hexavalent PP Sachet (Previously M57 sachet)
- CR400 Cr (VI) Standard (Previously M57 standard)
- Funnel
- Pipette

Safety:

- Consult the safety data sheet for all of the reagents before use. Even if you have used Metalometer reagents before, the formulation may have changed.
- Chromium (VI) is highly carcinogenic. Check standard samples and the empty standard container should be disposed of as hazardous waste.

Getting started:

- Switch the unit on using the power key.



- Select the Chromium method by depressing the [MODE] key until 'Cr6' is displayed.



Blank analysis:

- Ensure that the **Cr (VI) vial** is clean.
- Fill the **Cr (VI) vial** with 10ml of the water sample, to the base on the black arrow on the vial.
- Close the vial tightly with the cap
- Fit the **16mm vial adapter** into the instrument with the arrow aligned with the arrow on the instrument.
- Place the **Cr (VI) vial** into the vial adapter, making sure that the marks on the adapter and vial are aligned.
- Press the [ZERO/TEST] key



- The method symbol flashes for approx. 8 seconds.
- The display shows: 0.0.0

Sample preparation:

- Add **one HT22 Chromium Hexavalent PP Sachet** straight from the foil to the water sample using the funnel.
- Close the vial tightly with the cap and swirl several times to mix the contents.

Analysis:

- Place the **Cr (VI) vial** into the vial adapter, making sure that the marks on the adapter and vial are aligned.
- Press the [!] key and hold.



- Press and release the [ZERO/TEST] key.



- Release the [!] key.
- The display shows: 05:00 and begins counting down.
- **Wait for a reaction period of 5 minutes.**
- After the reaction period is finished the measurement starts automatically.
- The method symbol flashes for approx. 3 seconds.
- The result is shown in the display in mg/l Chromium (VI).

Preparation of check standard

- Attach a clean pipette tip to the end of the pipette and set the pipette to 250µL.
- Add 250µL of the **CR400 Cr (VI) Standard** to the clean **Cr (VI) vial**, and then add deionised water to the base of the black arrow on the vial.
- Continue with blank analysis, and sample preparation and analysis as above from step 3 of 'Blank analysis'.
- The result displayed should be 1.00 mg/l Chromium (VI) ±0.2 mg/l.
- If the result obtained deviates by more than the above limits, thoroughly rinse both vials and the sample beaker with deionised water, clean the vials and sample beaker with an IPA wipe, rinse again with deionised water, and repeat the measurement with a fresh check standard sample.
- If the result still deviates by more than the above limits, contact Trace2o for further assistance.

LOD/Tolerance

- The Lower LOD is 0.02 mg/l (20ppb), upper LOD is 2 mg/l (2000ppb).
- Tolerance: ± 0.01 mg/l Cr (VI).

Notes

- For best results, thoroughly clean the vials and the measuring beaker between tests with IPA wipes. Rinse thoroughly with deionised water. Ensure that the outside of the vials are clean, dry and free from fingerprints. Always handle the vials by the lid where possible.
- pH value of water sample should be between 3 and 9.
- Known interferences: Molybdenum, Mercury, Vanadium, Permanganate, Iron, Copper.
- Solutions are available for combating some interferences in the sample. These may be specific to particular water types or conditions. For further information, please contact Trace2o Technical Support department – technical@trace2o.com