

APPLICATION NOTE

T2O-AN-258

NICKEL METHOD

The following application note explains the procedure for the detection of Nickel 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**
- **Ni vial**
- **Stirring rod**
- **HT50 Nickel No. 1 Tablet** (Previously M58a tablet)
- **HT51 Nickel No. 2 Tablet** (Previously M58b tablet)
- **NI400 Ni Standard** (Previously M58 standard)
- **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.

Getting started:

- Switch the unit on using the power key.



- Select the Nickel method by depressing the [MODE] key until 'ni' is displayed.



Blank analysis:

- Ensure that the **Ni vial** is clean.
- Fill the **Ni vial** with 10ml of the water sample.
- Close the vial tightly with the cap.
- Place the **Ni vial** in the sample chamber, making sure that the marks on the instrument 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 HT50 Nickel No. 1 Tablet** straight from the foil to the water sample.
- Crush the tablet using a clean stirring rod, until the tablet is dissolved.
- Add **one HT51 Nickel No. 2 Tablet** straight from the foil to the same water sample.
- Crush the tablet using a clean stirring rod.
- Close the vial tightly with the cap and swirl several times until the tablets are dissolved.

Analysis:

- Place the **Ni vial** in the sample chamber, making sure that the marks on the instrument and vial are aligned.
- **Wait for a reaction period of 2 minutes.**
- Press the [ZERO/TEST] key.



- The method symbol flashes for approx. 3 seconds.
- The result is shown in the display in mg/l Nickel.

Preparation of check standard

- Attach a clean pipette tip to the end of the pipette and set the pipette to 250 μ L.
- Add 250 μ L of the **NI400 Ni Standard** to the clean **Ni vial**, and then add deionised water to the 10ml line.
- Continue with blank analysis, and sample preparation and analysis as above from step 3 of 'Blank analysis'.
- The result displayed should be 1.0 mg/l Nickel \pm 0.1 mg/l.
- If the result obtained deviates by more than the above limits, thoroughly rinse the vial with deionised water, clean the vial 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 0.1 mg/l (100ppb), upper LOD is 10 mg/l (2000ppb).
- Tolerance: \pm 0.05 mg/l Ni.

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.
- Known interferences: Iron, Cobalt, EDTA.
- 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