

APPLICATION NOTE

T2O-AN-253

IRON METHOD

The following application note explains the procedure for the detection of Iron 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
- Fe vial
- HT43 Vario Ferro F10 PP sachet (Previously M53 sachet)
- FE400 Fe Standard (Previously M53 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 Iron method by depressing the [MODE] key until 'FE' is displayed.



Blank analysis:

- Ensure that the **Fe vial** is clean.
- Fill the **Fe vial** with 10ml of the water sample.
- Close the vial tightly with the cap
- Place **Fe 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 HT43 Vario Ferro F10 PP sachet** straight from the foil to the water sample.
- Close the vial tightly with the cap and invert several times to mix the contents.

Analysis:

- Place the **Fe vial** in the sample chamber, making sure that the marks on the instrument and vial are aligned.
- Press the [!] key and hold.



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



- Release the [!] key.
- The display shows: 03:00 and begins counting down.
- **Wait for a reaction period of 3 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 Iron.

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 **FE400 Fe Standard** to the clean **Fe 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 1.00 mg/l Iron \pm 0.05 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 3 mg/l (3000ppb).
- Tolerance: \pm 0.005 mg/l Fe.

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.
- This method determined all dissolved and most undissolved forms of iron in the water sample.
- Water samples containing visible rust should be allowed to react for at least five minutes.
- Very strongly basic or acidic water samples must be adjusted to a pH value between 3 and 5 before analysis.
- Accuracy is not affected by undissolved powder.
- 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