

OBJECTIVE

Procedure for calibrating the Refined Oil sensor.

PREPARATORY STEPS

- **Check**

Ensure that the Refined Oil sensor has been correctly assigned to the AUX socket number it's fitted to. Not applicable if using AP/AS-PRO. Ensure that the probes end cap is clean and fitted during calibration and when taking measurements in the field. Failure to use the end cap will lead to incorrect calibration and erroneous readings in the field.

- **Precautions**

During operation, the Refined Oil Electrode emits high intensity ultraviolet (UV) light, which is harmful to skin and eyes and may cause cancer. Avoid exposure to UV light when the Electrode is in operational.

Precautions must be taken to avoid looking directly at the Electrode without the use of UV light protective glasses.

Do not look directly at the lenses on the front face of the Electrode when it is operational.

- **Required Items**

- REFOIL-CAL calibration solution (10ppm solution of 1-5,naphthalenedisulfonic acid disodium salt)

- **Note on correlation**

Refined fuels such as benzene, toluene, ethylbenzene, and xylenes (BTEX) can be measured using the optional REFOIL optical electrode. In order to 'calibrate' the REFOIL electrode, a 10ppm calibration solution of 1-5, naphthalenedisulfonic acid disodium salt should be used. This solution contains naphthalene, an aromatic hydrocarbon, which has **similar** fluorescence characteristics to many Refined Oils.

- **Preparation**

The probe and REFOIL-CAL should be left on the bench overnight so that their temperatures can equilibrate.

- **Equipment**

- Aquaprobe.
- Calibration instrument; Aquameter / Bluelink / Aquacal PC software
- REFOIL-CAL solution

CALIBRATION

Calibration guidance will assume you are using an Aquameter, procedure will be similar when using Bluelink or AquaCal.

Procedure, 0 calibration:

1. Pour the pure water down the side of the calibration vessel so that air bubbles aren't introduced to the liquid. Ensure there is at least 10cm of liquid in the calibration vessel.
2. Put the probe into the pure water. If the probe does not have a cleaning arm tap the probe on the bottom multiple times to dislodge bubbles, after you have put it in the liquid and right before starting the calibration. If your probe does have a wiper, run a clean cycle after you put it in the liquid and right before starting the calibration.
3. Leave the probe to sit in the water for two minutes to stabilise.
4. To start the calibration, press the MENU key then select Calibration>Full Cal>AUX ELETRODES>REFOIL to enter the REFOIL calibration screen.
5. Move the cursor downwards to point 1, which is the 0 calibration.
6. Press the OK button on the Aquameter to begin the calibration process.
7. A calibration report value will be displayed after the calibration is complete, it is useful to record these values for troubleshooting purposes.

Procedure, 10ppm calibration:

1. Pour the 10ppm REFOIL solution down the side of the calibration vessel so that air bubbles aren't introduced to the liquid. Ensure there is at least 10cm of liquid in the calibration vessel.
2. Put the probe into the solution. If the probe does not have a cleaning arm, tap the probe on the bottom multiple times to dislodge bubbles, after you have put it in the liquid and right before starting the calibration. If your probe does have a wiper, run a clean cycle after you put it in the liquid and right before starting the calibration.
3. Leave the probe to sit in the REFOIL solution for two minutes to stabilise.
4. To start the calibration, press the MENU key then select Calibration>Full Cal>AUX ELETRODES>REFOIL to enter the Refined Oil calibration screen.
5. Move the cursor downwards to point 2, which is the 10ppm calibration.
6. Press the OK button on the Aquameter to begin the calibration process.
7. A calibration report value will be displayed after the calibration is complete, it is useful to record these values for troubleshooting purposes.

CONTROL

Check the calibration report value is within the acceptable range.

The acceptable range for the 0% calibration is >2000mV

The acceptable range for the 10ppm calibration is >900mV over 0 point calibration.

Once calibration is complete press the escape button until you can see the live readings. Check that the Refined Oil readings is displaying a value **close to 10,000µg/L** at 20 degrees C. This value will vary with temperature.

Dated	Revision	Document evolutions	Author
03/07/25	0	Creation	CP
04/07/25	1	Review and fine adjustment	GP

Notes