Ethylene Sensor Zero Calibration

The baseline or zero of the ethylene sensor is known to drift, especially the C_2H_4 ppb sensor. The zero calibration should be performed daily. This can be done manually or automatically, as described below. In both cases, **potassium permanganate ($KMnO_4$)** is used to scrub ethylene from the gas and set the zero. Using PolarCept (water in Chamber In) is not necessary during the zero calibration.

It is not recommended to use N_2 gas to zero the C_2H_4 sensors. N_2 gas typically has hydrocarbon impurities which could create signal for the ethylene sensor. Standard ethylene gas (0 ppm) can be used to perform the zero calibration.

Manually Set Zero

Please see Measurement>Settings menu on page 17 for additional information.

1. Place potassium permanganate ($KMnO_4$) in Chamber Out.
2. Power on the instrument and allow adequate warm-up time (3 min).
3. Press the Right arrow when Measure is highlighted to being a measurement.
4. Let the sensor stabilize and automatically being measuring.
5. Once the measurement begins, press the right arrow until you access the "settings" menu.
6. Scroll down to "Set Zero".
7. Press the Right arrow to highlight "C_2H_4".
8. Press Enter.
9. A message appears asking "zero selected sensors?"
    a. Press enter to confirm.
10. A message appears asking to "Place $KMnO_4$ in CH_Out.'"
    a. If $KMnO_4$ is in Chamber Out, press enter to confirm.
11. The display will switch to Monitor mode and "correcting offset" is shown at the bottom.
    a. The settings will automatically change to turn on Chamber Out, turn off Chamber In and turn on the Close loop.
12. The instrument will wait until no more than a 40 ppb change is detected for 10 minutes before setting the zero calibration point.
13. The instrument will make a "beep" sound twice to indicate that the offset correction is complete. **The entire set zero process takes about 25 minutes**.
14. The measurement will continue with the original settings for the conditioning chambers and close loop on/off.