TELEDYNE ANALYTICAL INSTRUMENTS

Procedure: How to check for leaks in the sample line of a Teledyne instrument which utilizes a Micro-fuel Cell oxygen sensor.

The Teledyne Micro-fuel Cell oxygen sensor is a flow insensitive device. When exposed to a flow within the range of 0.1 to 3 scfh in a steady state condition of flow, the sensor's reported oxygen level will be the same.

If there is a leak within the instrument or the sample delivery system such that ambient oxygen is leaking in, the typical effect is that the instrument will read higher than it should.

For instance, one might expect a trace oxygen analyzer to read 0.5 ppm but the reading is higher -- say, 18 ppm. In order to determine if the cause of the higher reading is a leak of ambient oxygen into the system, execute the following trouble-shooting procedure:

1. Check the vent line of the analyzer. In order to utilize the flow variation procedure to check for leaks, make sure the vent is unobstructed and ideally goes to atmospheric pressure.

2. Set the flow of the instrument to about 2 scfh. Allow two minutes for the reading to stabilize at the new flow rate. Although the sensor is flow insensitive in a steady state condition, there can be some transient effect visible to the sensor as a result of changing the flow. Record the oxygen reading.

3. Reduce the flow to about 0.5 scfh. After allowing two minutes to pass, again record the reading.

4. If the reading at the lower flow rate is higher in oxygen than the reading at the higher flow rate, the problem is most likely a leak somewhere in the sample delivery system. Check fittings with Snoop (soapy water leak test solution) in order to trace the leak. In particular, check the sensor holder to make sure the device holding the sensor has been properly tightened so ambient oxygen cannot enter the sensor here.