

## Does the EAGLE Conform to EPA Method 21 Performance Criteria?

The Eagle Portable Gas Monitor was designed with EPA Method 21 in mind. EPA Method 21- Determination of Volatile Organic Compound Leaks, is a test method used for determination of leaks of VOCs from process equipment. The performance requirements for portable instruments used for this purpose are outlined in Sections 6 and 8 of Method 21. Basic requirements from Method 21 are as follows:

**Section 6.1 The VOC instrument detector shall respond to the compounds being processed. Detector types that may meet this requirement include, but are not limited to, catalytic oxidation, flame ionization, infrared absorption, and photoionization.**

The Eagle uses a catalytic oxidation sensor that will respond to virtually all VOCs.

**Section 6.2 The instrument shall be capable of measuring the leak definition concentration specified in the regulation.**

The Eagle range of detection is 0-50,000 parts per million (ppm) for methane, which covers most currently defined or published leak rates.

**Section 6.3 The scale of the instrument meter shall be readable to + 2.5 percent of the specified leak definition concentration.**

With a minimum resolution of 5 ppm, the Eagle will meet this requirement for leak rates defined as 200 ppm or greater.

**Section 6.4 The instrument shall be equipped with an electrically driven pump to ensure that a sample is provided to the detector at a constant flow rate. The nominal sample flow rate, as measured at the sample probe tip, shall be 0.10 to 3.0 l/min (0.004 to 0.1 ft<sup>3</sup>/min)...**

The Eagle uses a high-performance electric pump that samples at a nominal flow rate of approximately 0.7 to 1.0 l/min, and sounds an alarm if the flow rate drops below 0.3 l/min.

**Section 6.5 The instrument shall be equipped with a probe or probe extension for sampling not to exceed 6.4 mm (1/4 in.) in outside diameter, with a single end opening for admission of sample.**

The Eagle probe is 1/4" outer diameter, and includes a hydrophobic element to prevent intrusion of water or other liquids into the sample system.



**Section 6.6 ...The instrument shall, at a minimum, be intrinsically safe for Class I Division 1 conditions, and/or Class 2 Division 1 conditions, as appropriate...**

The Eagle is certified to be intrinsically safe for Class I Division 1 Group A, B, C, and D hazardous locations by both CSA (Canadian Standards Association) and UL (Underwriters Laboratories).

**Section 8.1.1.2 The instrument response factors for each of the individual VOC to be measured shall be less than 10 unless otherwise specified in the applicable regulation...**

Response factors for various VOCs can be supplied, and a list of commonly encountered materials is included in the Eagle instruction manual. None of the published factors are greater than 10, in fact none are greater than 3.

**Section 8.1.2.2 The calibration precision shall be equal to or less than 10 percent of the calibration gas value.**

The Eagle can be calibrated anywhere in its range, and calibration precision is less than 5 % of the span gas value.

**Section 8.1.3.1 ...measure the time required to attain 90 % of the final stable reading...**

**Section 8.1.3.2 The instrument response time shall be equal to or less than 30 seconds...**

Eagle response to 90 % of full value is less than 30 seconds.

Note: All information referenced to currently available EPA Method 21 as of January 1, 2003.

>> [More information about the EAGLE gas monitor](#)