

EyeCGas® Multi

US EPA OPERATING PERFORMANCE ENVELOPE



According to Appendix K, the OGI camera used for surveying must be capable of detecting methane emissions of 19 g/hr and either butane emissions of 29 g/hr or propane emissions of 22 g/hr in predefined field conditions.

Field conditions, such as the viewing distance to the component to be monitored, wind speed, ambient air temperature, and the background temperature, have the potential to impact the ability of the OGI camera operator to detect a leak. Therefore, an operating envelope has been

established for field use of the EyeCGas camera. A detection survey must not be performed when the field conditions are outside of the developed operating envelope.

Opgal has completed a series of operating envelope tests, and the results are presented in tables 1 -3. The operating envelope results are presented as maximum wind speed that a survey may be performed, in a defined set of distance and delta-T field conditions.

Table 1 Maximum wind speed for detecting 19 g/h of methane.

Distance [m]	Envelope Wind Speed [m/s] @ $\Delta T < 2^{\circ}C$	Envelope Wind Speed [m/s] @ $\Delta T = 5^{\circ}C$
3	7.5	11
12	5	8

Table 2 Maximum wind speed for detecting 22 g/h of propane.

Distance [m]	Envelope Wind Speed [m/s] @ $\Delta T < 2^{\circ}C$	Envelope Wind Speed [m/s] @ $\Delta T = 5^{\circ}C$
3	9	13
12	6	9

Table 3 Maximum wind speed for detecting 29 g/h of butane.

Distance [m]	Envelope Wind Speed [m/s] @ $\Delta T < 2^{\circ}C$	Envelope Wind Speed [m/s] @ $\Delta T = 5^{\circ}C$
3	9.5	15
12	6.5	10.5

The results are consistent with an independent third-party result, performed by EXERA France in 2015. The most restrictive operating envelope is for methane as it has the highest detection limit out of the 3 gases and the lowest detection requirement in Appendix K. In most cases of distances of up to 3 meters to the imaged component and ambient minimal delta-T is up to +/- 2 oC, the operator may perform a survey when wind speed is lower than 7.5 m/s (17 mile/hour).

* Exera, Evaluation Report- E 6061 X 15, Evaluation of the Infrared Camera for Detection of Gas Leak Opgal EyeCGas. Dec-2015.