

CO Detector Performance under Different Conditions of Humidity and Temperature

Detectors Tested

1) Pocket CO

\$139 www.detectcarbonmonoxide.com

2) BW Technologies Gas Alert Extreme

\$265 plus \$200 for calibration gas and regulator www.gasmonitors.com

3) CO Experts 2002

(current model 1070) \$139 www.aeromedix.com

Methodology

NIST traceable 10 and 50 ppm calibration gas acquired from Air Liquide was applied directly to each detector for a maximum of 90 seconds, or for the time required for the unit to stabilize at the target concentration. The flow rate for gas application was 0.5 lpm for the Pocket CO and BW Tech detectors, and 1.0 lpm for the CO Experts unit due to its large volume housing.

Prior to each challenge test at a particular temperature and relative humidity the units were allowed to equilibrate to the new conditions for 15 minutes. Two Cole-Parmer NIST traceable digital thermohygrometers were used to verify challenge conditions.

The detector response for each calibration gas concentration was measured at the different challenge conditions and time to achieve this response was recorded. The recovery time for the unit's reading to return to 5 ppm was recorded after each gas challenge.

Following the temperature and humidity challenge testing each unit was challenged qualitatively with various known volatile compounds in order to determine potential cross-sensitivities. Compounds tested included acetone, perchloroethylene, methanol, ethanol, isopropanol, and toluene. The units were also used for monitoring CO exposure in the moving automobile setting for two weeks in order to determine other potential false positive test sources (i.e. nitric oxide/nitrogen dioxide).