Product: All Portables
Subject: Use of Quad Gas Mixtures

Crowcon use a standard quad gas mixture in conjunction with Tetra and Tetra3 portable multigas monitors for testing and calibration of the sensors for flammables, oxygen, carbon monoxide and hydrogen sulphide.

The composition of this gas is:

C03169 58 LITRE CYLINDER 15PPM H2S, 250PPM CO, 2.5%CH4, 18% 02 in a balance of Nitrogen.
C03327 34 LITRE CYLINDER 15PPM H2S, 250PPM CO, 2.5%CH4, 18% 02 in a balance of Nitrogen.

When used for gas (bump) testing the gas is applied and the gas monitor checks its response against expected values which are upper and lower response limits for each gas. Provided all the sensor responses are within the limits the monitor passes the test. If any sensor response is outside the limits the monitor fails test and identifies which sensor(s) response is wrong. Where the gas is used for calibration the sensor responses are adjusted to the preset calibration values stored by the instrument.

For Tetra the quad gas can be used for both test and calibration for all combinations of the sensors for these gases. For the **four gas Tetra3 only** there is an issue arising from the cross response of carbon monoxide on the hydrogen sulphide sensor. Although this is specified <2%, 250ppm applied CO gas could have a response difference of 5ppm which would be in addition to the hydrogen sulphide response. This means that at the 15ppm gas level with response limits of 13ppm and 17ppm the gas test response of the H2S sensor will be about 20ppm and thus the test will fail. To overcome this issue the upper test limit is being increased to 22ppm i.e. the 17ppm nominal limit for H2S plus 5ppm for the CO effect.

For the reason outline above the current quad gas mixture cannot be used for calibration of Tetra3. IT would cause the calibration gain to be reduced to bring the gas response down to 15ppm giving an under reading error which is not acceptable. We therefore recommend calibrating Tetra3 four gas with single gas mixtures at present.

(We intend to introduce as soon as practical an alternative quad gas mixture with a carbon monoxide level reduced to 100ppm which would reduce any calibration error to acceptable levels)

Approved: KR
Date: 19/12/07

Instructions for amending the ‘bump test’ parameters as follows:

- Switch on instrument, insert it in the charger interface cradle, and connect the cradle to the PC.
- Launch ‘Portables PC’ product interface software.
- Open the ‘Engineers tab’ by highlighting the ‘Spanner’ icon.
- Select ‘Tetra3’ from the drop down selection menu.
- Information from the specific Tetra3 will be automatically uploaded to the PC.
- Select the channel associated with the H2S parameters.
- Select ‘Cal Settings’
- Highlighlight the ‘bump test **high**’ parameter.
- Change the setting to 22 ppm. (box changes colour to ‘yellow’)
- Select ‘Download to Instrument’
- Message returned asking ‘Are you sure you want to continue’.
- Select ‘Yes’