APPLICATION NOTE

# LD16-01

# Air analysis using the MultiDetek2 and PlasmaDetek2


▲ MultiDetek2 ▲ PlasmaDetek2

## LDETEK SOLUTION:

The air analysis for environmental applications is more and more required in different regions of the world. In this application note, the trace analysis of acids, sulfurs and nitrous oxide has been combined in one single compact instrument using one detection technology based on plasma emission (PlasmaDetek2). The MultiDetek2 compact GC has been configured with parallel channels to achieve the measurement at low ppb level for the different impurities. The sample collection can be performed with micro pump for ambient pressure application or bags, with a proportional micro valve for positive pressure application to control flow rate or with our auto injector headspace for vials. The MultiDetek2 was built using heated zones to avoid cold points between the columns and the plasma detector. The detector, valves, fittings and tubing are made of coated stainless steel to avoid surface adsorption. This ensures good sensitivity and repeatability measuring impurities.

## RESULTS:

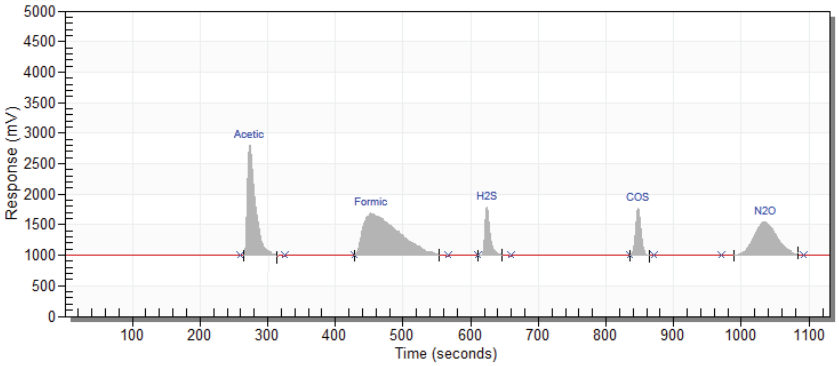


**Figure 1 :**
**Chromatogram of trace impurities in balance air**

| COMPONENT | CONCENTRATION | PEAK HEIGHT | NOISE | LDL (3X NOISE) |
|---|---|---|---|---|
| Acetic acid | 0.27 ppm | 2850 mV | 36 mV | 0.010 ppm |
| Formic acid | 0.20 ppm | 1785 mV | 46 mV | 0.015 ppm |
| H2S | 3.00 ppm | 1860 mV | 1.6 mV | 0.008 ppm |
| COS | 3.00 ppm | 1870 mV | 1.9 mV | 0.009 ppm |
| N2O | 2.30 ppm | 1595 mV | 0.4 mV | 0.001 ppm |

Note: other LDL could be obtained with different injection volume and chromatographic conditions

**Figure 2 :** LDL based on 3 times noise ratio ▲

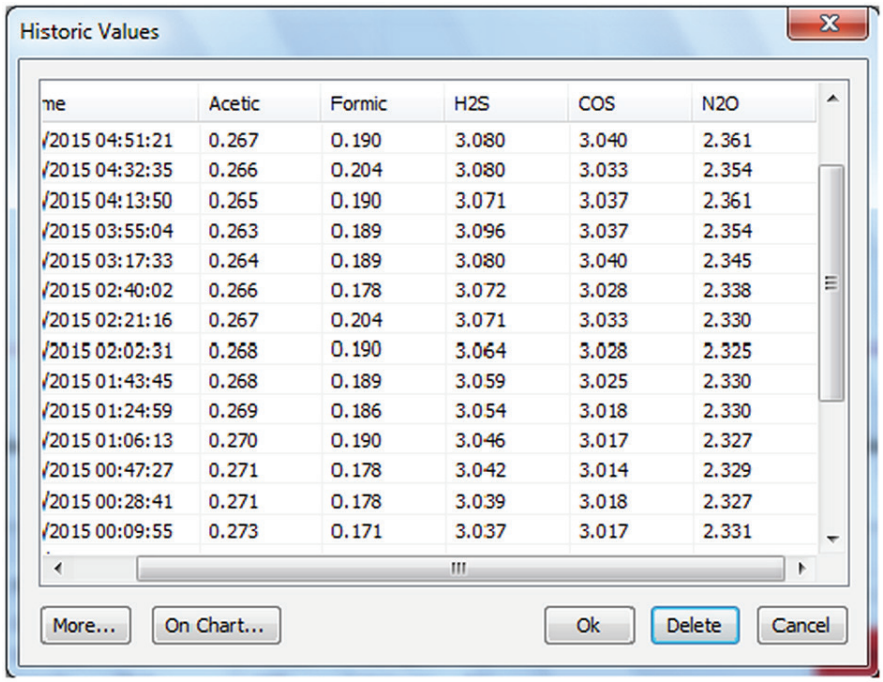


**Figure 3 :**
**Repeatability results**

## CONCLUSION:

Using a solution combining the PlasmaDetek 2 and the MultiDetek 2 is the best way to achieve sensitivity, robustness and speed in an industrial or laboratory compact system for air analysis.


LDetek Where innovation leads to success

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