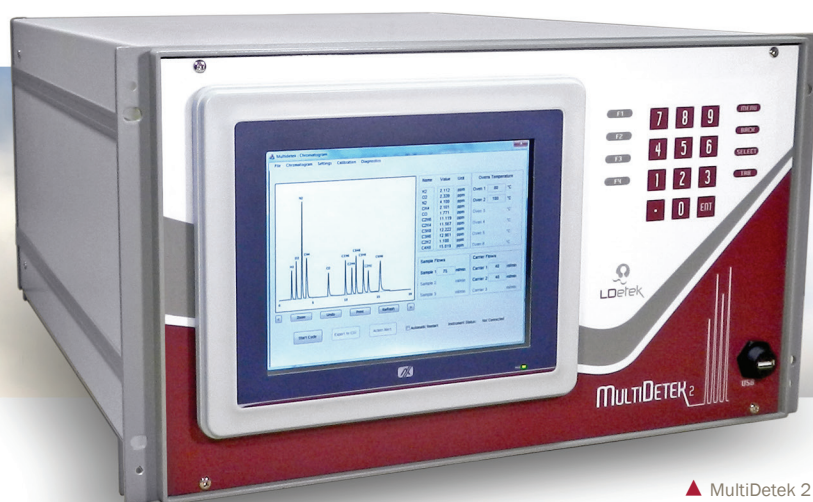


APPLICATION NOTE

LD13-03



Measurement of H₂S and COS in Syngas with MultiDetek 2



▲ MultiDetek 2



Syngas (Synthesis gas) a fuel gas mixture, primarily composed of hydrogen, carbon monoxide and carbon dioxide, is mainly used as intermediate in creating synthetic natural gas (SNG) or ammonia or methanol.

To be able to use a clean and environmental friendly fuel and feedstock, the sulfurs compounds must be removed. Right analysis tool is needed to ensure that the concentration of sulfurs is kept at the minimum desired level.

SOLUTION:

The MultiDetek 2 (MD2) along with the PlasmaDetek technology bring an ideal and cost effective solution to monitor hydrogen sulfide (H₂S) and carbonyl sulfide (COS) in syngas.

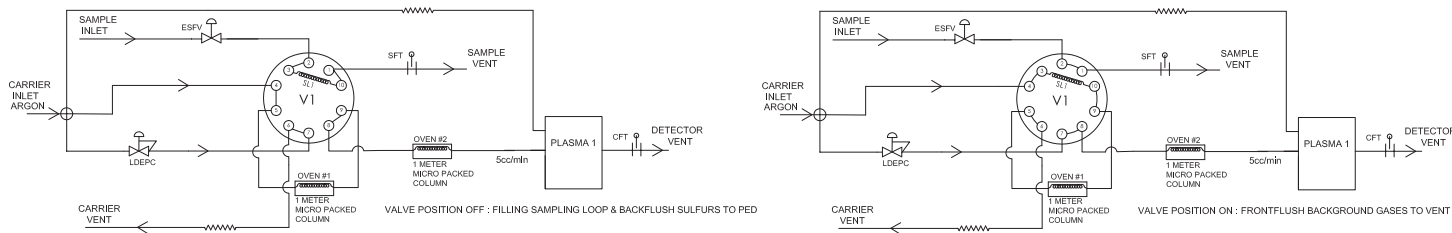
Other common technologies used on the market, like SCD (Sulfur Chemiluminescence Detector) or FPD (Flame Photometric Detector), need hydrogen and air. By using the PlasmaDetek and argon as carrier gas, the MD2 gives a low cost of operation and safer solution. All safety installation for the supply of hydrogen is avoided.



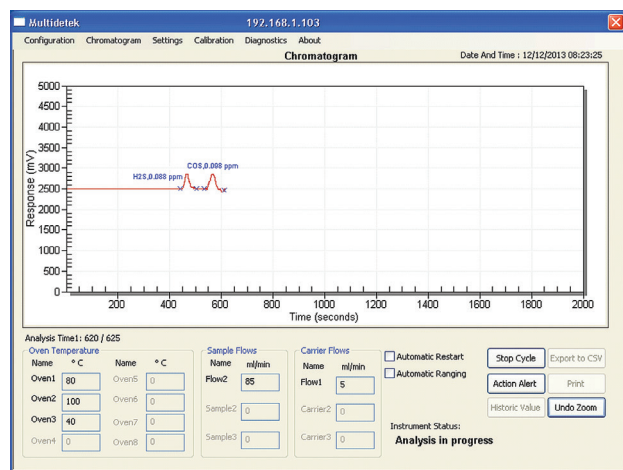
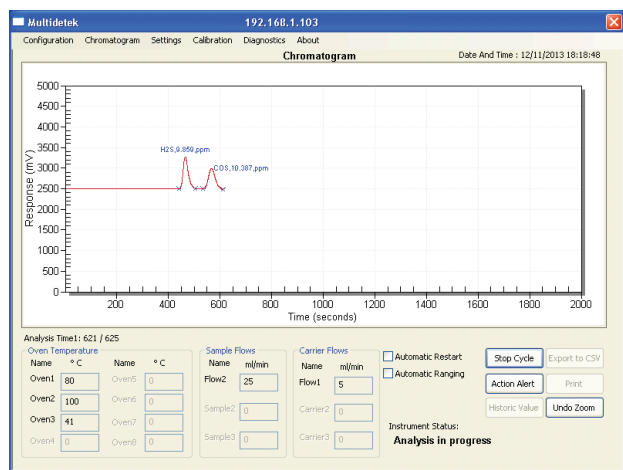
▲ PlasmaDetek

A simple frontflush configuration is used to get rid of the synthesis gas background with the first column. The sulfurs compounds are then well separated by the second column and sent to the PlasmaDetek (PED) especially configured for sulfurs gases. With the use of micro packed type columns, the system can operate with very low carrier flow consumption. The use of argon as carrier gas brings the system even more interesting cause of the low operational cost due to low cost of Argon gas.

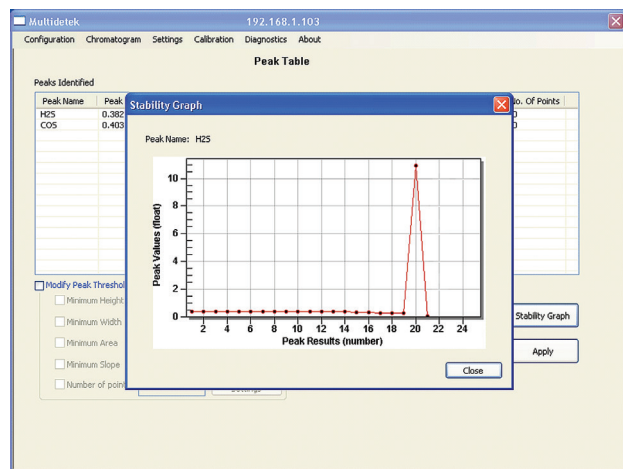
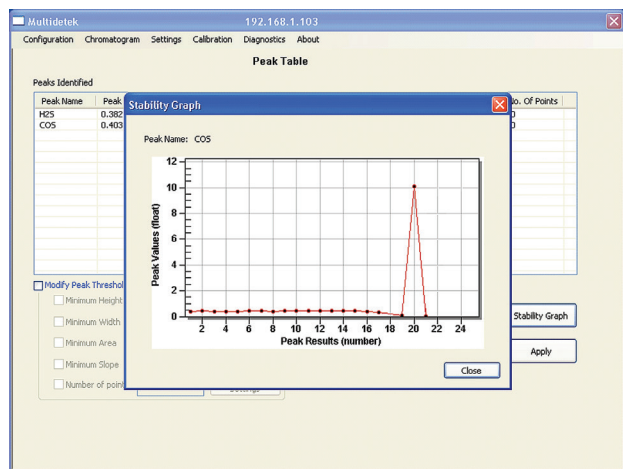
Such MultiDetek operates with column carrier flow of 5sccm. A make up gas of 20sccm is required to the detector to allow good stability and sensitivity. No additional gases or consumables parts are required what minimize the operation and installation cost.



With the combination of the PlasmaDetek and argon carrier gas, detection as low as a few ppb is possible.



Analysis results showing stability on 19 consecutive cycles for H₂S & COS at concentration of 400ppb. Then switch on span gas at 10ppm for H₂S & COS, then switch on zero gas for H₂S & COS.



With the user friendly interface and the configuration of the MD2, it is easy to use the instrument as a process control device or simply a laboratory gas chromatograph to make sporadic analysis.



Where innovation leads to success

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