LAB/REFINERY APPLICATION

Hydrogen Detection in GC Oven
Return on Investment in two weeks

TECHNICAL BACKGROUND

Due to the shortage and high price of helium, the gas chromatography (GC) lab at an ExxonMobil refinery in the US decided to change carrier gases from helium to hydrogen. This posed a potential safety hazard due to the explosive nature of hydrogen. Therefore, adequate means of hydrogen detection within the GC oven was required in case of a column break.

THE H2SCAN SOLUTION

H2scan's HY-OPTIMA™ Model 720AS-GC (Analyzing System) was selected. The system provides a very simple solution to detect H2 leaks within the GC oven.

H2scan HY-OPTIMA™ 720AS-GC

Within the system is a pump, switching solenoid valve, calibration gas inlet and the hydrogen detection device. The active pumping provides fast response and the small size allows mounting flexibility - it can be easily installed either directly on or away from the GC.

The system continually pulls sample from the GC oven for 24/7 monitoring of the atmosphere in the GC oven. A hydrogen detection range of 0.4 to 5% is provided as hydrogen becomes flammable at 4%. If hydrogen reaches the alarm set point, two things will happen: an audible and visual alarm will be set off to alert of a potential hazard, and the solenoid valve will automatically switch to a nitrogen carrier to ensure there is no break in analysis. A system option will automatically switch from H2 to N2 to protect the column in the event of a column break.

"H2scan analyzers provide a cost-effective, robust and flexible solution for retrofitting the gas chromatographs in our lab as we are making the switch from He to H2 carrier gas. The ease of installation and sensitivity of the analyzer was very impressive." – *Laboratory Technician, Major Oil Company*

There is no need to ever replace the sensing element and the system offers very fast response time.

PROJECT BENEFITS

Hydrogen is 3 to 4 times less expensive than helium, which has widely been used as the standard carrier gas up until now. A typical GC lab might use 12 gas cylinders per week. Over the course of 1 year, one GC lab could save > $100k.

H2scan's HY-OPTIMA™ 720AS-GC provides a simplified, less costly installation. Additionally, minimal maintenance is required, providing significant cost savings over time.

27215 Turnberry Lane Unit A, Valencia, CA 91355 Phone: 661.775.9575 Fax: 661.775.9515 www.h2scan.com