

# APPLICATION NOTE

# LD22-01

**PST**  
PROCESS SENSING  
TECHNOLOGIES

**LDetek**  
A PST BRAND

## Analysis of Krypton & Xenon in UHP Oxygen



Measuring Krypton and Xenon in Oxygen is required to produce these rare gases. Using our Multidetek3 GC with our PED, the production of Kr-Xe can be realized.

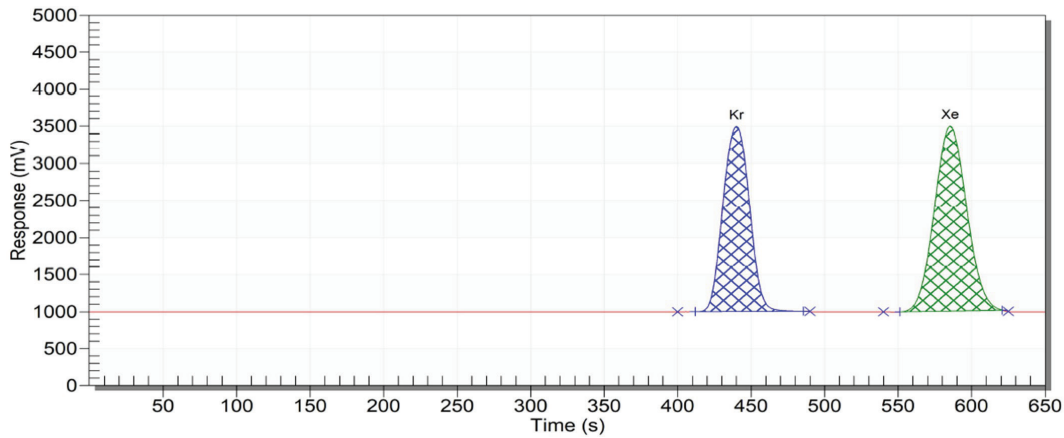
### LDETEK SOLUTION

The Multidetek3 industrial gas chromatograph configured with the plasma emission detector using Argon or Helium carrier gas is used to measure any concentrations of krypton and xenon. The instrument uses two packed columns and an heartcut valve configuration to separate and measure the krypton and xenon.

The solution using Argon as carrier is preferred as it keeps the operating cost low compared to similar gas chromatograph on the market that requires Helium as carrier gas.

The instrument simply requires a light maintenance process every 5 years to replace the carrier gas purifier and the diaphragms of the chromatographic valves.

## RESULTS



**Chromatogram:**  
4000ppm Kr, 400ppm Xe in balance Oxygen

Limit of detection (based on 3 times the noise level from a blank)

COMPONENTS	CONCENTRATION (ppm)	PEAK HEIGHT	NOISE	LDL (3X NOISE)
Kr	4000	2500mV	0.1mV	0.48ppm
Xe	400	2500mV	0.2mV	0.01ppm

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

## CONCLUSION

The MultiDetek3 industrial gas chromatograph configured with PED using Argon or Helium as carrier gas can measure concentrations of Krypton and Xenon in Oxygen. The production of rare gases can be done with the robust MultiDetek3 instrument. Argon as carrier gas, allows the gas producers to keep its operating cost low compared to other gas chromatographs that require to use Helium as carrier gas.