



## Applications Using Carrier Gas Selector

### Part 2 : Evolved Gas Analysis (EGA) of Polystyrene in Air

In pyrolysis gas chromatography (PY-GC) and EGA, inert gases such as He is generally used as an atmosphere gas. However, air must be used as the atmosphere gas in the analysis of hazardous gases released in work environment or in combustion of polymers. Conventionally, this has required careful modifications of the equipment with professional knowledge. We have therefore developed a carrier gas selector (CGS-1050E, Fig. 1) which allows facile switching of atmosphere gases. Fig. 2A and Fig. 2B show evolved gas curves of PS obtained both in He and air atmospheres, respectively, as applications using this device. In Fig. 2A, peak at 420°C arising from thermal decomposition of PS is observed in 360 ~ 480°C range, while in Fig. 2B, peak at 304°C derived from oxidation of PS is observed in 270~380°C range. See *Double-Shot Pyrolyzer Tech Note PYA4-001E* for applications of PY-GC.

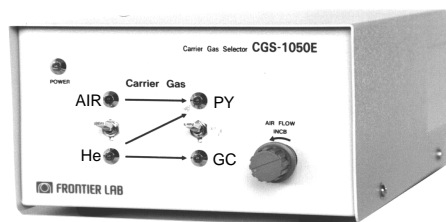


Fig. 1 Carrier Gas Selector (CGS-1050E)

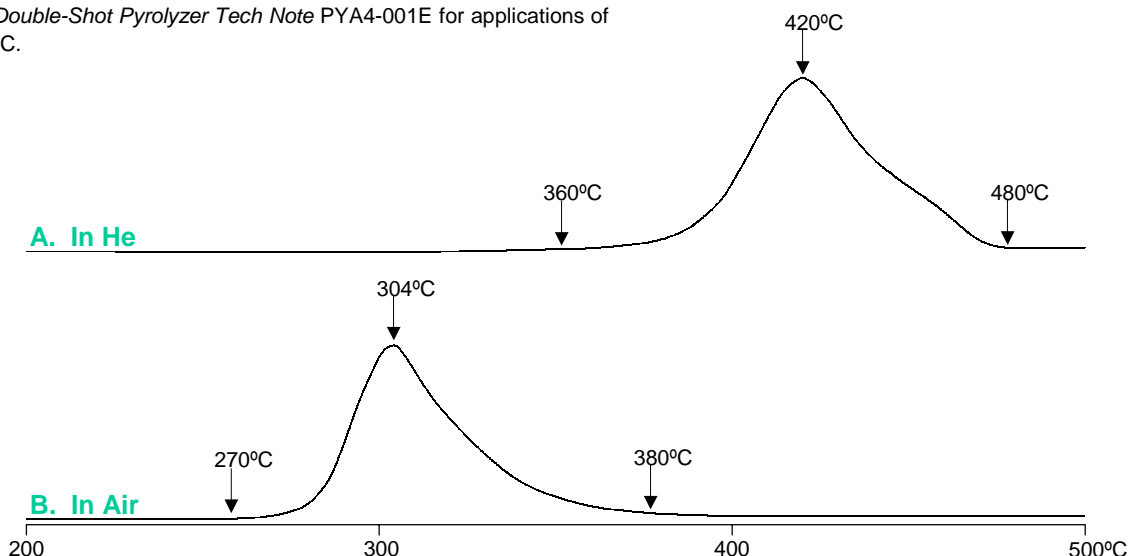


Fig. 2 Comparison of EGA Curves of PS under He and Air Atmospheres

Pyrolysis temp.: 200~500°C (20°C/min), Carrier gas : He or Air 50kPa, Split ratio : ca.1/50  
 EGA capillary tube : 0.15mm id, 2.5m (UADTM-2.5N), GC oven temp.: 300°C  
 Injection port temp.: 320°C, Amt. of sample : 60µg, Detector : FID

Keyword : Polystyrene, Air Atmosphere, Evolved Gas Analysis, Carrier Gas Selector

Applications : General Polymer Analysis, Environmental Analysis, Work Environment Analysis

Please forward your inquiries via our web page at:  
 (<http://www.frontier-lab.com/>), or send us a fax message.

**R&D and manufactured by:**  
**Frontier Laboratories Ltd.**

1-8-14, Saikon, Koriyama,  
 Fukushima, 963-8862 Japan  
 Phone: 81-24-935-5100 Fax: 81-24-935-5102

© : Registered trademark of Frontier Laboratories Ltd.

Your dealer: