



## Analysis Examples Using Carrier Gas Selector

### Part 3: Pyrolysis of Polycarbonate (PC) in Air

Using Carrier Gas Selector (CGS-1050E), Selective Sampler (SS-1010E), and MicroJet Cryo Trap (MJT-1030E), flash pyrolysis of polycarbonate (PC) was performed at 550° C both in air and He atmosphere. Pyrolyzates were analyzed by GC/MS. Fig. 1 compares pyrograms obtained both in air and He atmosphere. In the pyrogram obtained in He atmosphere, a large amount of bis-phenol A, monomer of PC, was found, in addition to phenols such as phenol and p-cresol. On the other hand, in the pyrogram obtained in air, a large amount of carbon dioxide was observed with a trace amount of phenols. The results demonstrates that when PC was pyrolyzed, a major portion of it was decomposed and oxidized in air at high temperature.

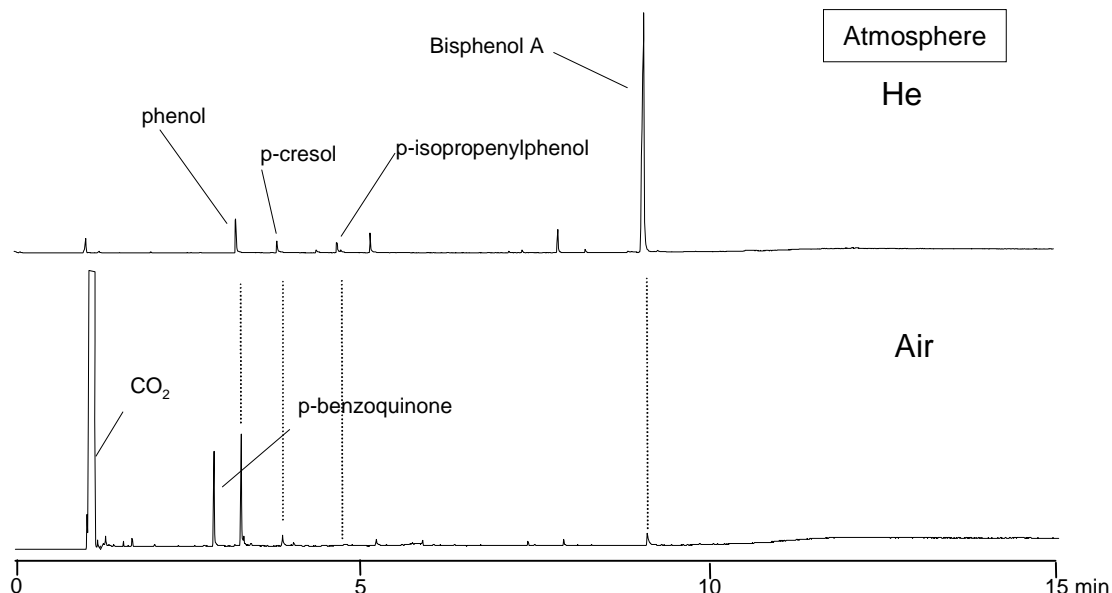


Fig. 1 Comparison of Pyrograms of PC Obtained in Air and He Atmosphere

Pyrolysis temp: 550° C, Carrier gas: Helium, Column flow rate: 1ml/min, Carrier gas total flow rate: 60ml/min  
Separation column: Ultra ALLOY-5 (5% diphenyldimethylpolysiloxane), Length: 30m, id: 0.25mm, Film thickness: 0.25µm  
GC oven temperature: 40 (1min hold) ~ 320°C (20°C/min), Injection port temp: 320°C, Sample size: 30µg

Reference: Hosaka et al. 5th Polymer Analysis Symposium, II-4, p43-44 (2000)

**Keyword: Polycarbonate, Carrier Gas Selector, Pyrolysis in air**

**Applications: General Polymer Analysis, Environmental analysis**

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