

# Effects of Pyrolysis Temperature to Pyrograms

In pyrolysis gas chromatography (Py-GC), the pyrolysis temperature of a sample is one of the most important factors influencing analytical results. Generally, as the pyrolysis temperature becomes higher, higher percentages of low molecular weight compounds of pyrolyzates are obtained. An effect of pyrolysis temperature to a pyrogram of polystyrene (PS) is described as an example. The pyrogram of PS (Table 1) contained styrene monomer (S), styrene dimer (SS) and styrene trimer (SSS). Higher pyrolysis temperature gave a lower percentage of SSS against S, and the ratio of SSS/S decreased almost linearly.

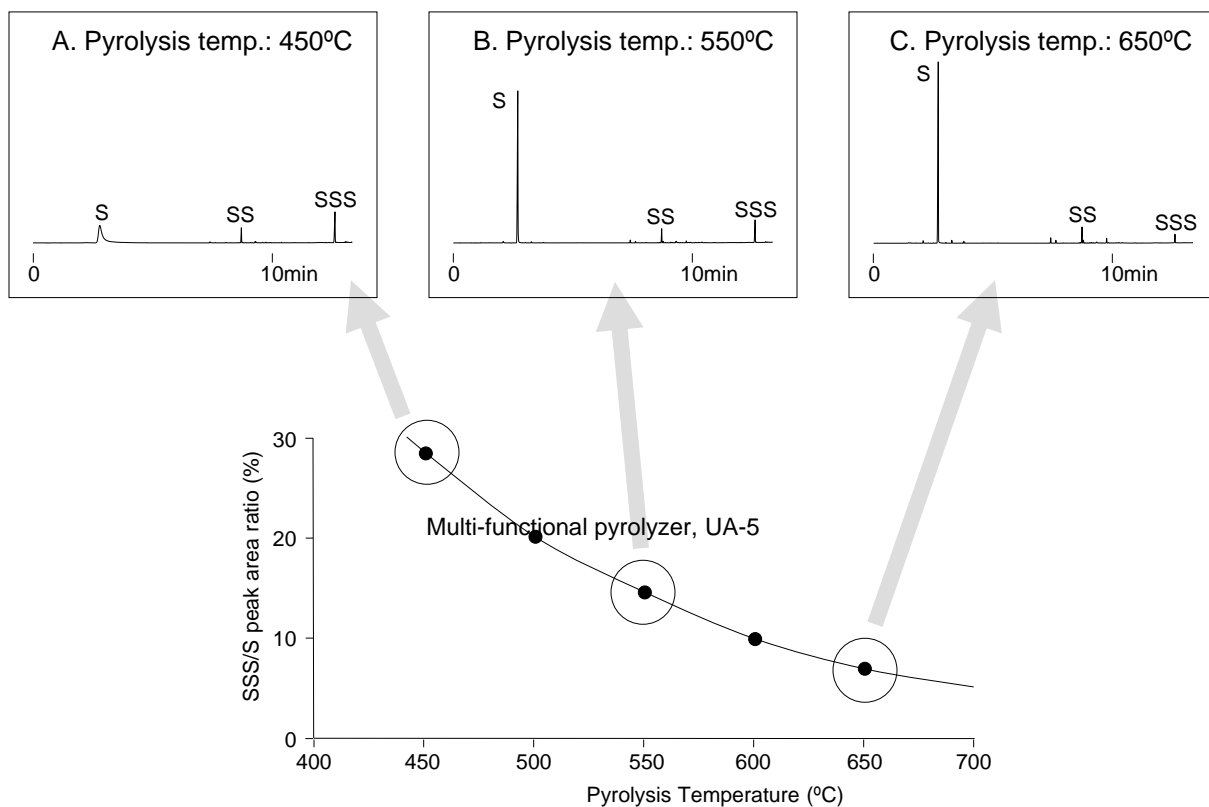


Fig. 1. Pyrolysis Temperature vs. SSS/S Ratio in Pyrogram of PS

Sample: 30 µg, Injection port pressure : 140kPa, Split ratio : 1/50, GC oven temperature : 70°C–320°C (20 °C/min) FID  
 Column :5% diphenylpolysiloxane, Length 30 m, Id 0.25 mm, Film thickness 0.25µm (Ultra ALLOY+5, Frontier Labs)  
 Sample cup SS (P/N : PY1-F003, for single-shot (5L) platinum)

**Keywords :** Pyrolysis Temperature, Polystyrene

**Products used :** Multi-functional pyrolyzer, UA-5

**Applications :** General Polymer Analysis

**Related technical notes :**

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