

3.15 Analysis of Tire Rubber - GCMS

■ Explanation

Large quantities of carbon black are added to the rubber components of tire rubbers. At a thermal decomposition temperature of 450 °C only the rubber components are decomposed, resulting in the detection of isoprene, its dimer and its homologue components. However, decomposition at the high temperature of 700 °C results in detection of various components. This example concentrates on sulfur constituents.

■ Analytical Conditions

Instrument : GCMS-QP1100EX
 PYR-2A
 Column : DB-1 0.2mm × 50m df 25 μm
 Col.Temp. : 50 °C-280 °C (5 °C/min)
 Inj.Temp. : 300 °C
 I/F Temp. : 300 °C
 Carrier Gas : 150kPa
 Split Ratio : 80 : 1
 Pyrolysis Temp. : 450 °C, 700 °C

References

Application News No. M104

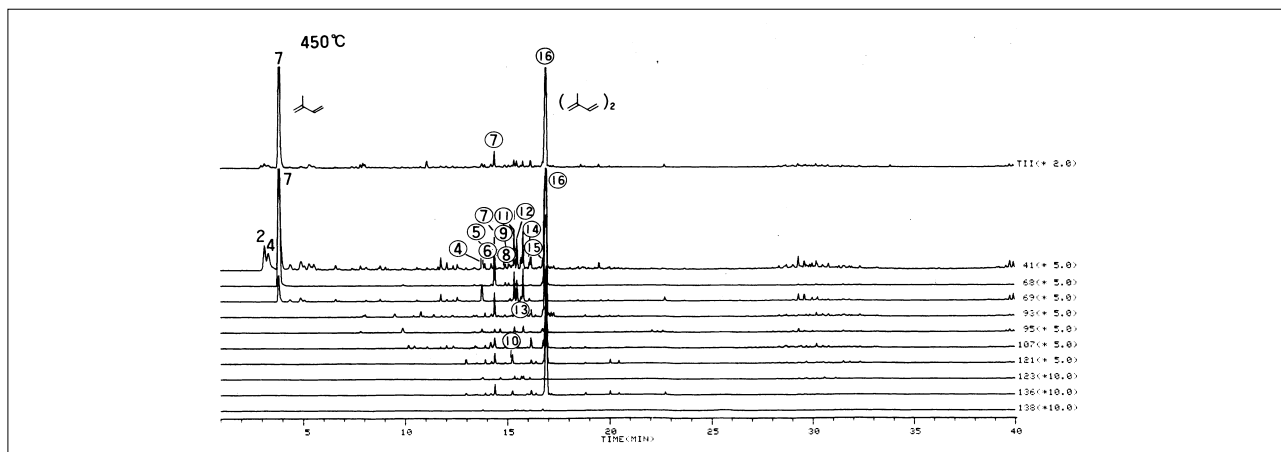


Fig. 3.15.1 MC at thermal decomposition temperature of 450 °C

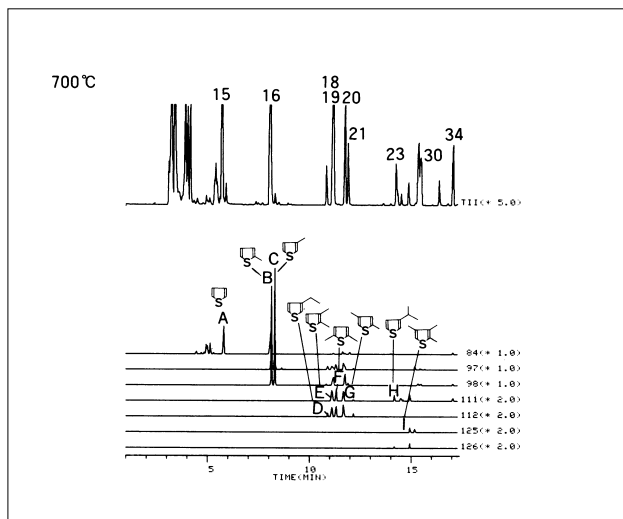


Fig. 3.15.2 1st MC at thermal decomposition temperature of 700 °C

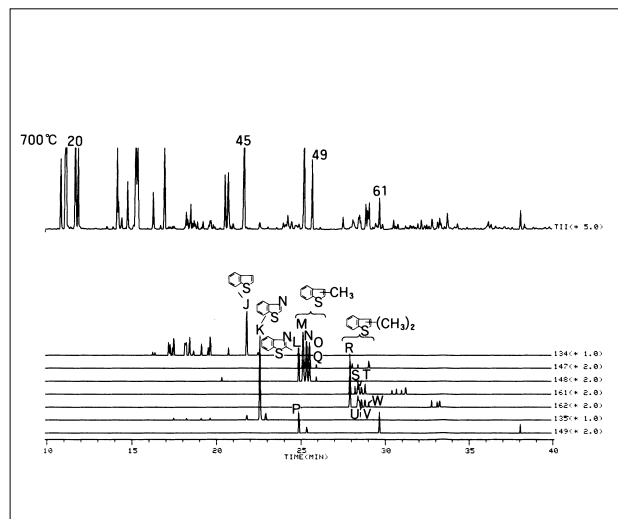


Fig. 3.15.2 2nd MC at thermal decomposition temperature of 700 °C