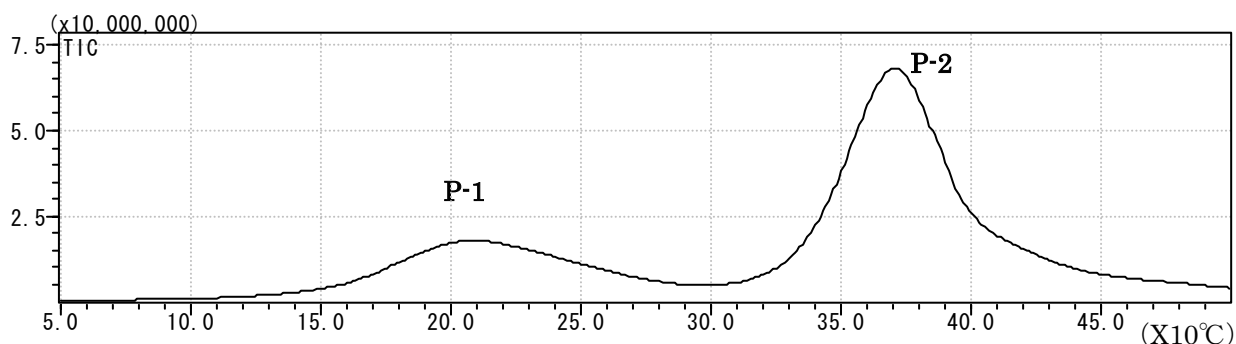


**Analysis of Rubber (NR) with PYR-GCMS**

This data sheet presents an example analysis of rubber using a double-shot pyrolyzer. In this method, first heat desorption conditions are decided based on the curve obtained from the gases generated by heating the sample from 50°C to 500°C. Table 1 shows the conditions for determining the heat

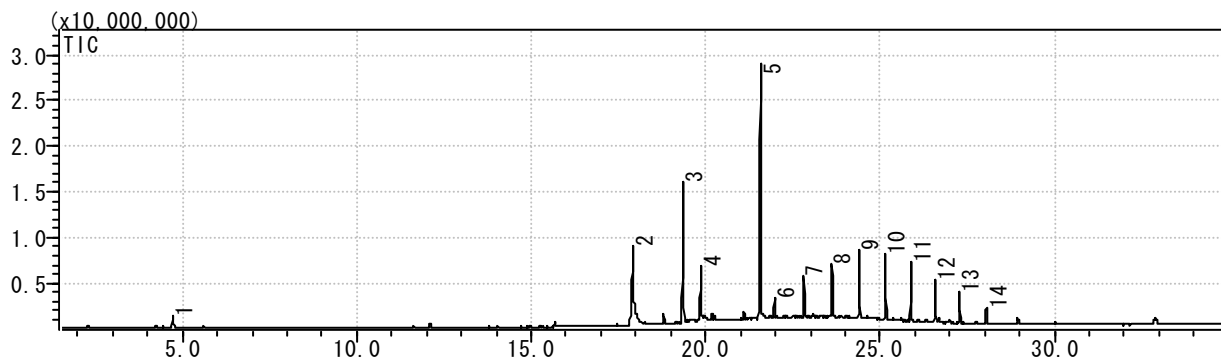
desorption conditions. By using an EGA tube, peak 1 for volatile components in additives is obtained from 100°C to 300°C. Then the sample was heated to 300°C and analyzed by GCMS to identify the components of peak 1.



**Fig. 1 Analysis of gases generated from rubber**

**Table 1 Analytical conditions for EGA-MS**

<b>Equipment</b>	:GCMS-QP2010+PY2020D
<b>Thermal decomposition furnace temp.</b>	:50°C to 500°C (10°C/min.)
<b>Carrier Gas</b>	:He 50kPa, 60ml/min <b>Split</b> :1/50
<b>EGA tube</b>	: 2.5m x 0.15mm i.d. (UADTM-2.5N), GC oven temp. 300°C
<b>Injection port</b>	:320°C, sample volume :0.2mg
<b>Ion source temp.</b>	:200°C
<b>Scan</b>	:m/z 10-300 (interval 1.0sec)



**Fig. 2 Chromatogram for analysis of gases generated at 300°C**

1:Aniline 2:Limonene 3:Palmitic acid 4:C<sub>14</sub>H<sub>14</sub>N<sub>2</sub>O 5:Stearic acid 6:? 7-14:n-C<sub>n</sub>H<sub>2n+2</sub>

**Table 2 Analytical conditions for PYR/GC-MS**

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<b>Equipment</b>	:GCMS-QP2010+PY2020D
<b>Column</b>	:DB-5MS (30m x 0.25mm i.d. df=0.25µm)
<b>Column time program</b>	:40°C (1min)-10°C/min-250°C (10min)
<b>Carrier gas</b>	: He 60kPa
<b>Split ratio</b>	:1/50
<b>Ion source temp.</b>	:200°C
<b>Scan</b>	:m/z 35-550 (interval 0.5sec)

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