

Analysis of synthetic rubber by Pyrolysis GC/MS

Summary

Analysis of synthetic rubber by IR/NMR is sometimes very difficult due to cross-linked structures and additives (carbon black, inorganic fillers, others).

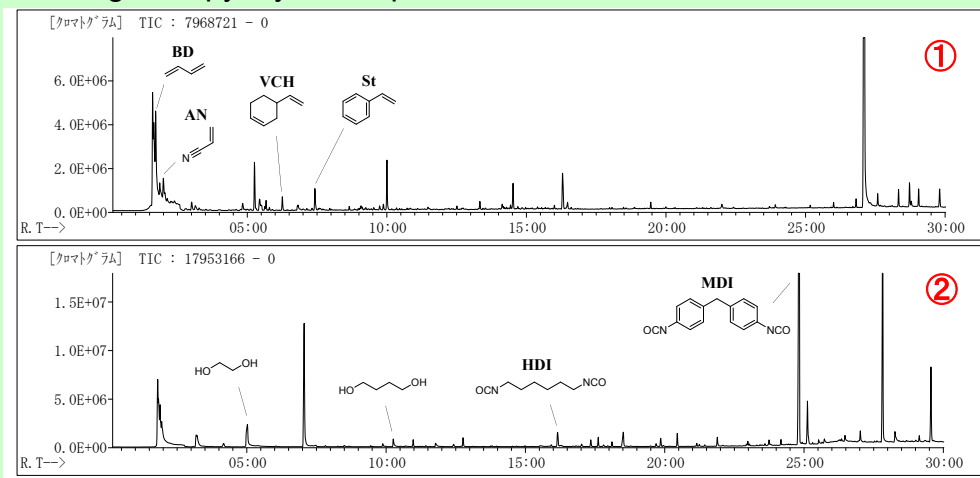
Pyrolysis GC/MS can heat a rubber product around at 600°C and can analyze gases like monomers released from a rubber product by thermal decomposition, then a rubber structure can be identified.

Examples

- rubber samples ① : slipper
- rubber samples ② : shoe sole



- chromatogram (pyrolysis temp. 590°C)



《 ① Monomers detected 》
 butadiene(BD)、acrylonitrile (AN)、
 vinylcyclohexene (VCH/BD-dimer)、
 styrene (St)

} acrylonitrile-butadiene rubber (NBR)
 and styrene-butadiene rubber (SBR)

《 ② Monomers detected 》
 hexamethylene diisocyanate (HDI)、
 methylene diphenyl diisocyanate (MDI)、
 ethyleneglycol、butanediol

} urethane rubber

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