3.9 Analysis of Liquid Crystals - GCMS

■Explanation

Fig. 3.9.1 shows some structures of liquid crystals. The molecular ion peaks denoting molecular weight cannot be detected with EI for some of these compounds, which mean that the determination of molecular weight and structure are difficult. Notably, compounds with ester structures cleave at the ester section. In such cases the use of CI is essential to provide molecular weight data. Molecular structure was conjectured using the CI data together with structure data from EI.

■Analytical Conditions

Instrument	: GCMS-QP1100EX
Column	: DB-101 0.24mm × 25m df 0.25 μm
Col.Temp.	: 180 °C-270 °C (5 °C/min)
Inj. Temp.	: 290 °C
I/F Temp.	: 300 °C
Carrier Gas	: 100kPa
Reagent Gas	: Isobutane

References

Application News No. M72

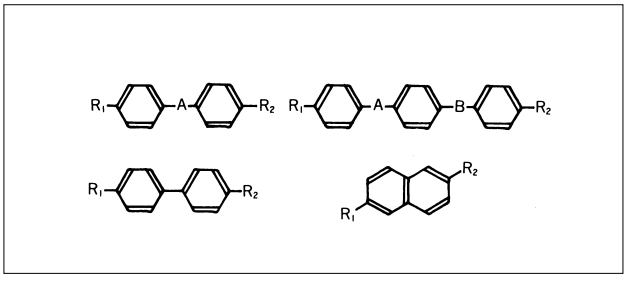

Fig. 3.9.1 Liquid crystal structure

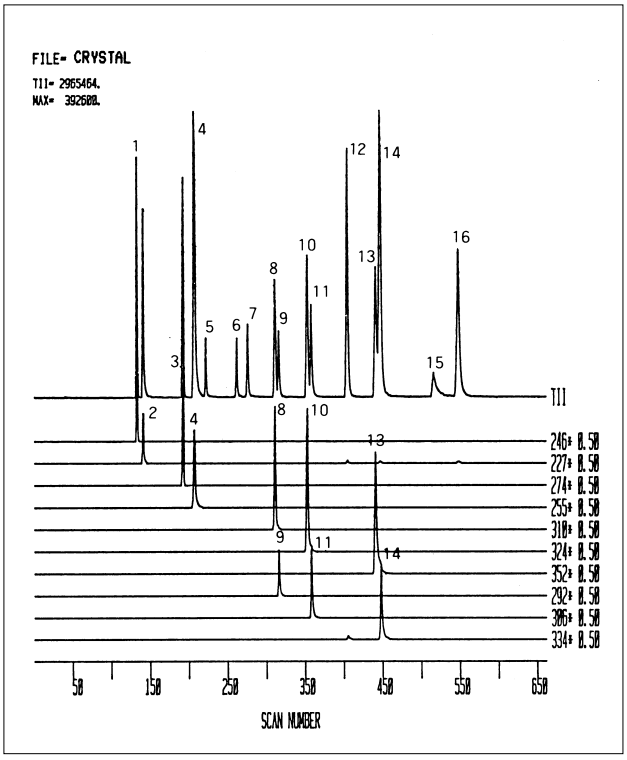

Fig. 3.9.2 MC

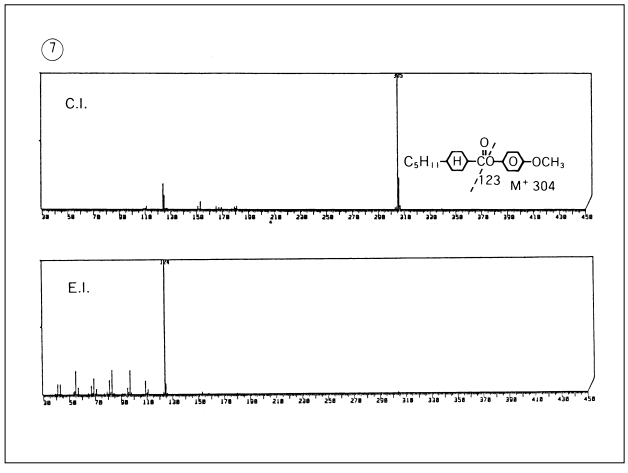

Fig. 3.9.3 Mass spectrum of peak 7

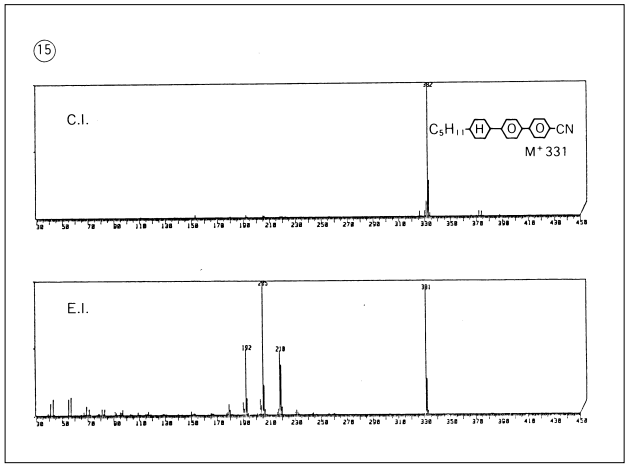

Fig. 3.9.4 Mass spectrum of peak 15