

SpiralTOF™

Measurement of synthetic polymers
Polymethyl methacrylate

Polymethyl methacrylate (PMMA) 4000 was measured by using the JMS-S3000 SpiralTOF. The $[M+H]^+$ peaks for PMMA with the basic monomer units of 100u (Fig. 1) were observed for this sample. The full PMMA mass spectrum and an expanded view around m/z 4000 are shown in Fig. 2(a) and (b), respectively. The resolving power at m/z 4,000 was approximately 45,000 (FWHM). Also, the mass differences between the 39, 40, and 41-mers had a very good match with the theoretical mass number (100.0524) of the PMMA repeat unit ($C_5H_8O_2$). A comparison between the 40-mer's observed and simulated isotopic patterns is shown in Fig. 2(c). The observed isotopic pattern is in very good agreement with the calculated isotopic distribution.

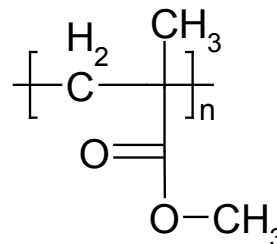
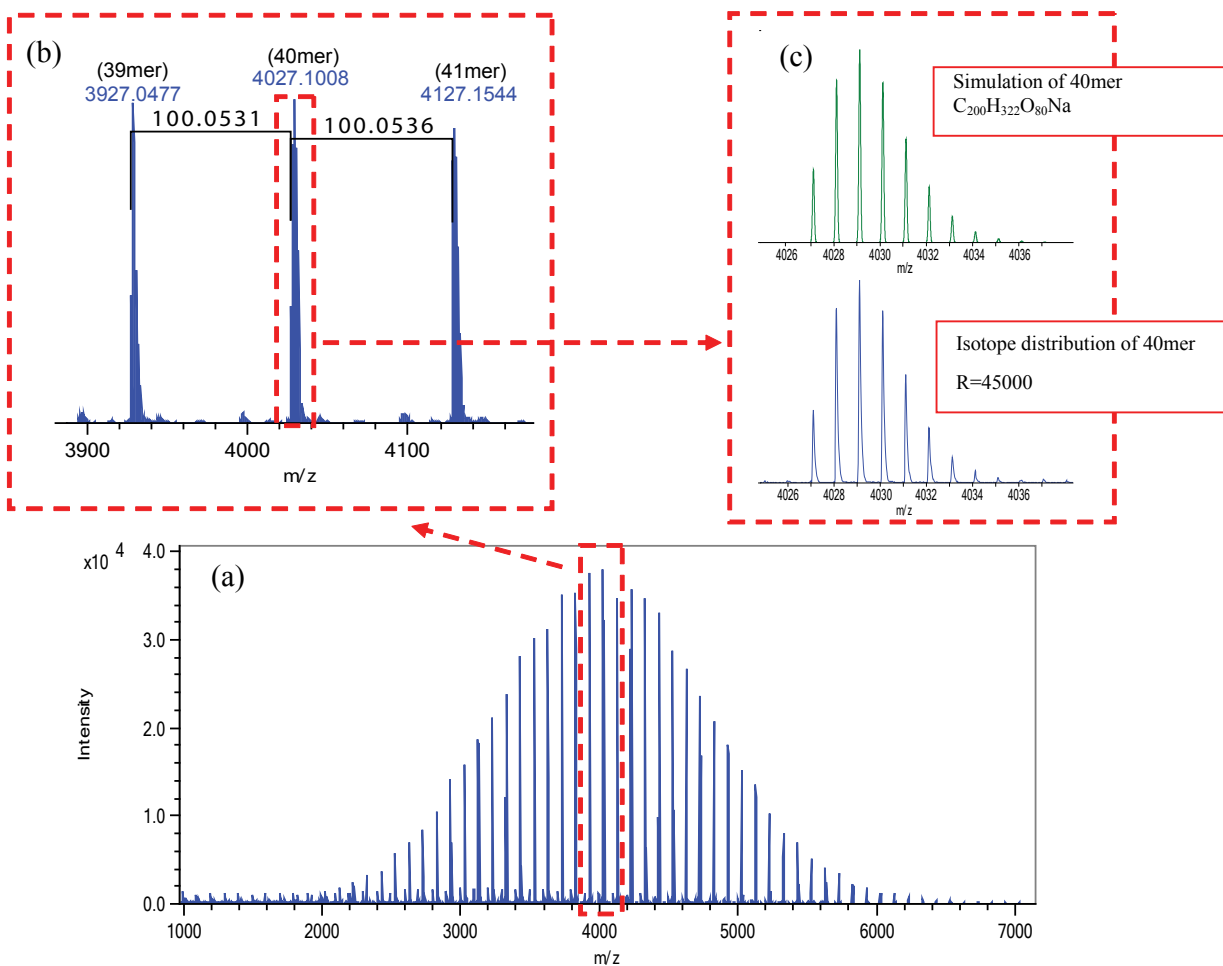
Figure 1. PMMA repeat unit ($C_5H_8O_2=100.0524$)

Figure 2. Mass spectrum of (a) PMMA4000, (b) the 39-41mer and (c) the 40mer with its corresponding isotopic simulation.