Applications Note

SpiralTOF™

Measurement of synthetic polymers

Polyethylene Glycol

Polyethylene glycol (PEG) 1000 and 8000 were measured by using the JMS-S3000 SpiralTOF. The $[M+H]^+$ peaks for PEG with the basic monomer units of 44u (Fig. 1) were observed for each sample. The mass spectrum for PEG1000 and an expanded view around *m/z* 1,000 are shown in Fig. 2. The resolving power at *m/z* 1009 is approximately 60,000 (FWHM). The mass difference between the 21, 22 and 23-mers showed very good agreement with the theoretical mass of the PEG monomer. The full mass spectrum for PEG8000 is shown in Fig. 3(a). The comparison between the observed and simulated isotopic pattern (R 35,000) for the 226mer are shown in Fig. 3(b). The observed isotopic pattern is in very good agreement with the calculated isotopic distribution.

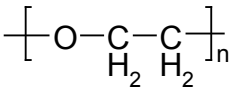

Figure 1. PEG repeat unit (C_2H_4O=44.0262).

Figure 2. Mass spectrum of (a) PEG1000 and (b) the 21-23mer.

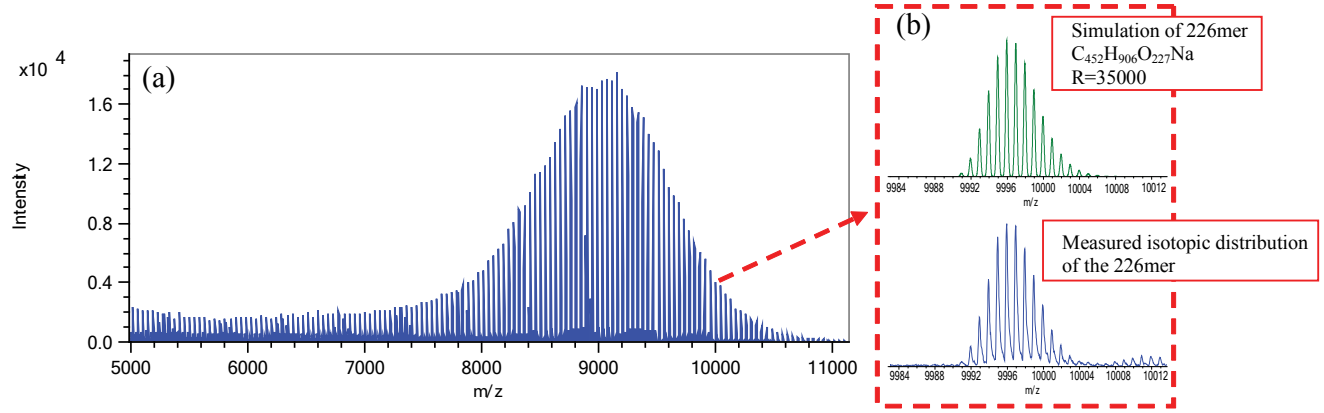

Figure 3. Mass spectrum of (a) PEG8000 and (b) the 226mer with its corresponding isotopic simulation.