SCIENTIFIC ANALYSIS INSTRUMENTS

Application Note

LaserToF TT

Characterisation of Synthetic Polymers

Introduction

Synthetic Polymers can be analysed by gel permeation chromatography (GPC) or by MALDI-ToF/MS.
GPC can only typically give a single low resolved peak from which only the average mass of the polymer can be elucidated. Analysis is also slow.
Analysis by MALDI-ToF/MS has the advantage of being fast and giving greater resolution so that monomer mass units are easily resolved.
In this application note, a description of basic polymer analysis is described. Samples of PEG, Polystyrene and PMMA are analysed.

Method

Polymer samples were prepared using standard polymer protocols. Samples were ran on an SAI LaserToF TT in reflectron mode, and data were characterised with propriety software tools.

Results

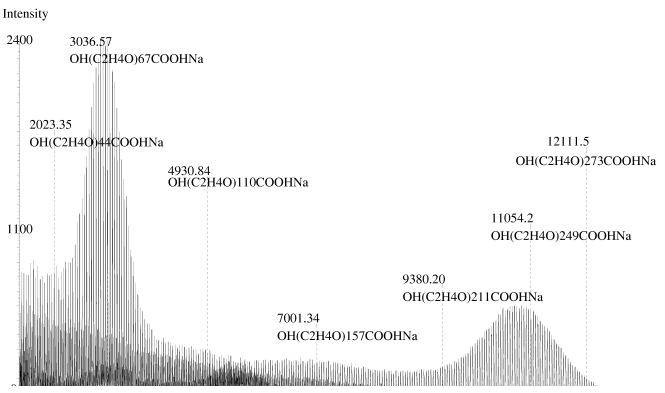

Figure 1: Polyethyleneglycol Sample X

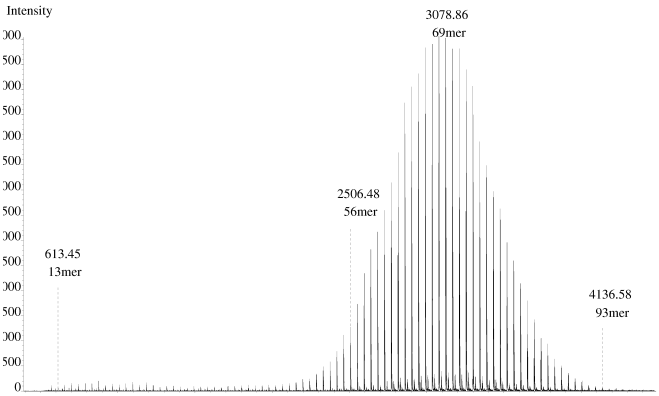

Figure 2: Polyethyleneglycol Sample Y

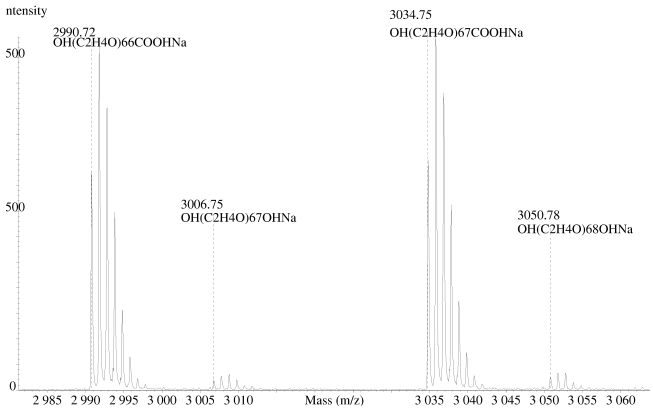

Figure 3: Zoomed-in region of PEG sample Y

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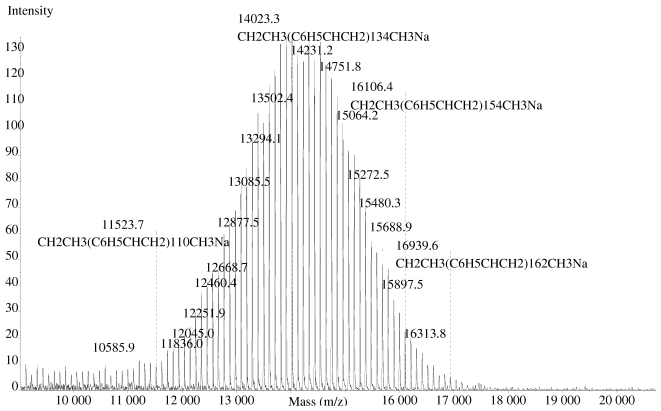

Figure 4: Polystyrene

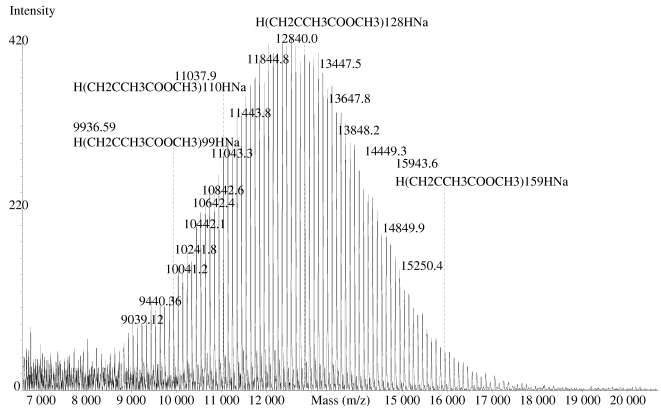

Figure 5: Polymethylmethacrylate

Conclusion

The LaserToF TT is proficient at analysing polymer samples. The instrument was operated in reflectron mode, thereby achieving well resolved data at high masses. Polymers are readily identified with the propriety software, which also calculates polydispersity and other key polymer parameters.

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