The comparison of ionRocket and EGA-MS for Nylon-6,6 Analysis

EI-008

Background

The ionRocket is the temperature rising device for DART®-MS (Direct Analysis in Real time-Mass Spectrometry) analysis. The ionRocket heats sample from room temperature to maximum 600℃. EGA (Evolved Gas Analysis) also keeps and/or rises temperature optionally and the generated gas from heating the sample was detected by MS. Fort both methods, there are the same two points: temperature rising and using MS as detector.
In this report, we compared ionRocket analysis to EGA-MS analysis.

Samples

NYLON-6,6

Methods

At the ionRocket analysis, sample was cut by razor into 0.5 mm x 0.5 mm and put onto the pot, sample stage. The temperature was raised by the ionRocket from room temperature to 600℃ by 100℃/min. The total run time was about 7 min.
At the EGA-MS analysis, 10 mg sample was collected, put into the sample cup and analyzed. The temperature was raised by EGA-MS from 100℃ to 600℃ by 20℃/min and kept at 600℃ for 5 min.

Results

The results of ionRocket and EGA-MS analysis are shown in Figure 1 and 2, respectively.
At the ionRocket analysis, the fragment ions were not observed because DART® is a kind of soft ionization technique. Monomer and dimer were observed (Figure 1). on the other hand, at the EGA-MS analysis, fragment ions, pyrolysis and its fragment ions were observed (Figure 2B).

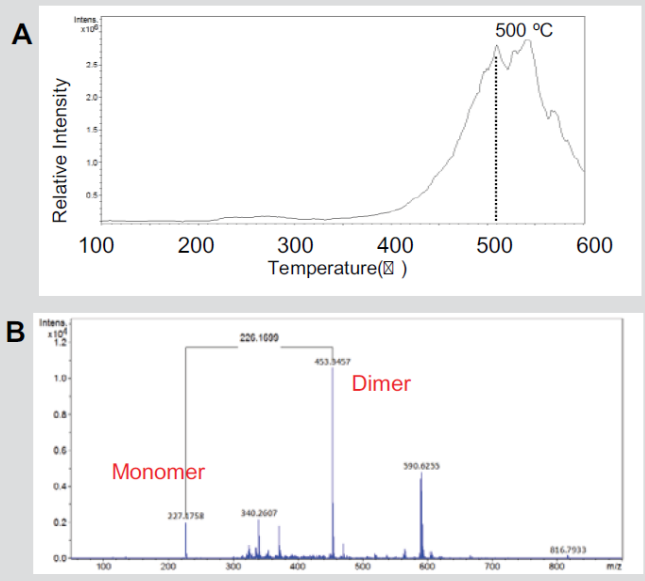

Figure 1. ionRocket analysis

(A) Thermogram (B) Averaged mass spectrum of base peak

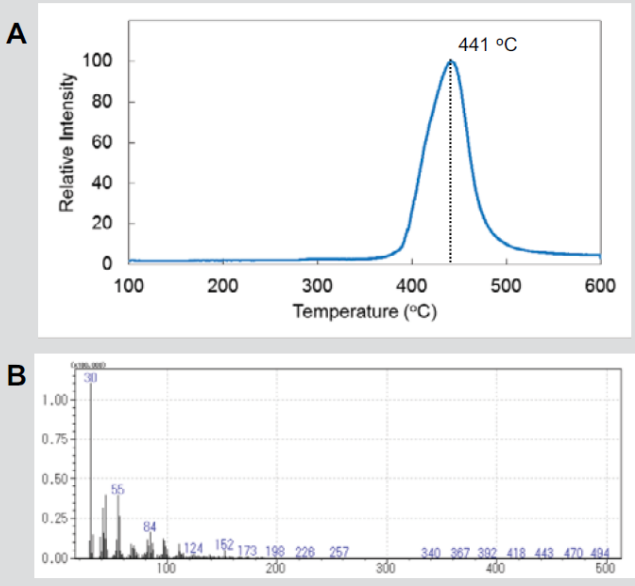

Figure 2. EGA-MS analysis

(A) Thermogram (B) Averaged mass spectrum of base peak

Target

Material analysis / Foreign material analysis

BioChromato

Mining ideas, Aiding laboratories

ionRocket

Web : https://biochromato.com/
Email : oversea@bicr.co.jp