Analysis of Sunscreen Cosmetics by ionRocket-DART®-MS

EI-016

Background

Sunscreen cosmetics have been under constant development to optimize their UV cutting, water resistance, and usability. Silicone based surfactants and film-forming agents are typically used as a base. In order to analyze these agents, GC-MS (Gas Chromatograph-Mass Spectrometry) or GPC (Gel Permeation Chromatography) are often used. But these analysis methods require pre-treatment matched to each sample type.
In this application, we utilized ionRocket DART®-MS analysis without any pre-treatment. We detected silicone based cosmetic raw material, directly.

Samples

Sunscreens (commercial products)

Methods

2 µL of a sunscreen was placed into the ionRocket copper sample pot. A temperature gradient of 100 °C /min. from room temperature to 600 °C was applied. Total run time was 7 min.

Results

TIC, MS spectra measured at 100 °C to 300 °C and 300 °C to 500 °C are shown in Figure 1.
In MS spectrum acquired at 100 °C to 300 °C, Polyoxyethylene (POE) modified silicone based active agents were observed. In the MS spectrum acquired at 300 °C to 500 °C, silicone based film-forming agents were observed.
ionRocket DART®-MS can analyze silicone based cosmetic raw material easily and directly, and should prove useful for stability evaluation and quality control of mixture materials such as cosmetics.

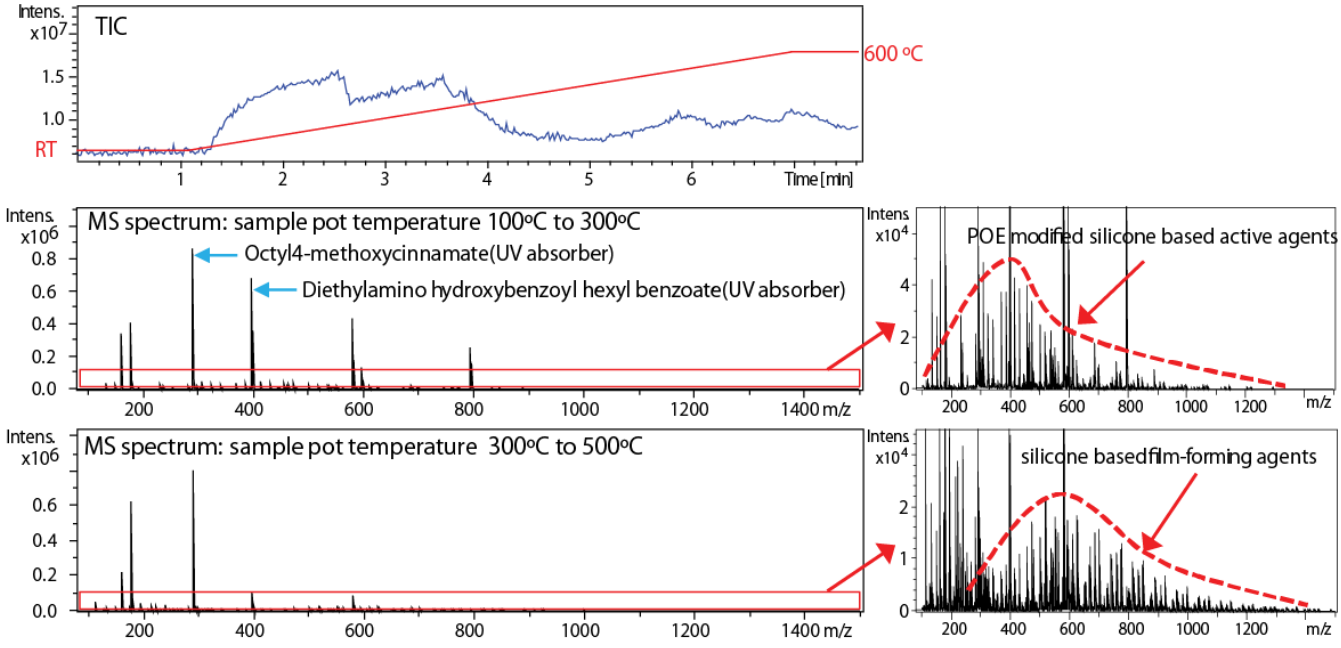

Figure 1. Analysis Results of Sunscreen Cosmetics

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