

The analysis application of custard cream by ionRocket-DART®-MS

【Keyword】 ionRocket, Rapid analysis, Mass spectrometry, DART®

【Subject area】 Food analysis, Foreign material analysis, Material analysis

■ Abstract

In response to a growing interest in food safety, rapid analysis tools are increasingly important for inspection and for quality control. Custard cream, a thick liquid containing large quantities of lipids, normally requires extensive pretreatment prior to analysis. The pretreatment is time-consuming and a burdensome task for investigators. ionRocket achieves the direct analysis of such samples without any pretreatment and a rapid analysis.

■ Sample

4 different types of custard cream (3 from different cream puffs, 1 from a cream filled bun.)

■ Method

The analysis system consists of DART®-MS (Direct Analysis in Real Time- Mass Spectrometry) and an ionRocket temperature gradient sample heating system. 10 mg of sample was placed in a sample POT (photo above). The system was programmed to create a temperature gradient from room temperature to 500 °C at 100 °C/min. The analysis duration was approximately 7 minutes.

■ Result

The analysis results were mapped using Mass++ (Figure 1).

Different proportions and different species were detected between the four different creams, from which one can infer the variation of ingredients used. The peak indicated with a star for the “Cream puff A” sample was also found in the “Cream puff C” sample, but not in B. Also, the same components indicated with a circle or a triangle were detected among all the cream puffs A, B and C, but differ in their amounts.

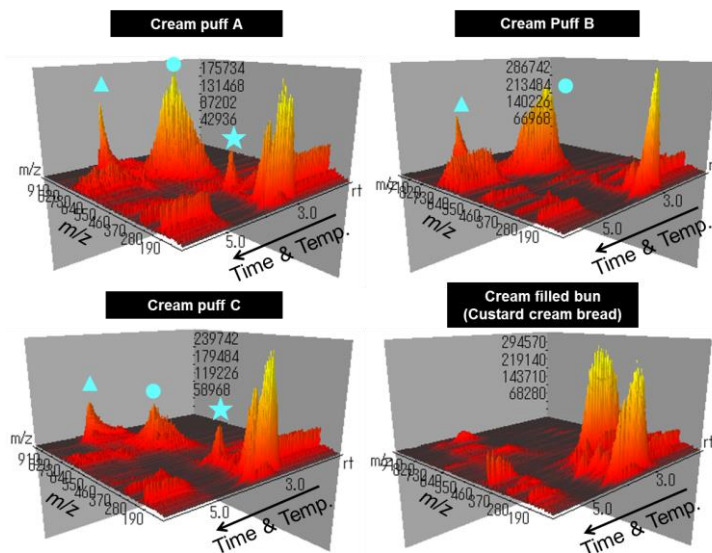
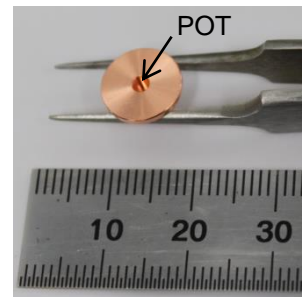


Figure 1. m/z vs time-temperature vs intensity

ionRocket: Room temperature → 100 °C/min → 500 °C, DART®-SVP temperature: 400 °C, Ionization mode: DART®(+)