SHIMADZU

Application Data Sheet

No.8

GCMS

Gas Chromatograph Mass Spectrometer

Analysis of Brominated Flame Retardants Using a Pyrolysis GC-MS System

This datasheet introduces a sample measurement of Decabromodiphenyl ether (Deca BDE), a brominated flame retardant, using the EGA/PY-3030D Multi-Shot Pyrolyzer and the GCMS-QP2010 Ultra.

Analysis Conditions and Results

A 0.5 mg of shaved polystyrene (NMIJ CRM 8108-a) containing the brominated flame retardant was used as the measurement sample. The FASST (Fast Automated Scan/SIM Type) measurement mode, which is capable of simultaneous Scan and SIM measurements, was used. The analysis conditions are shown in Table 1.

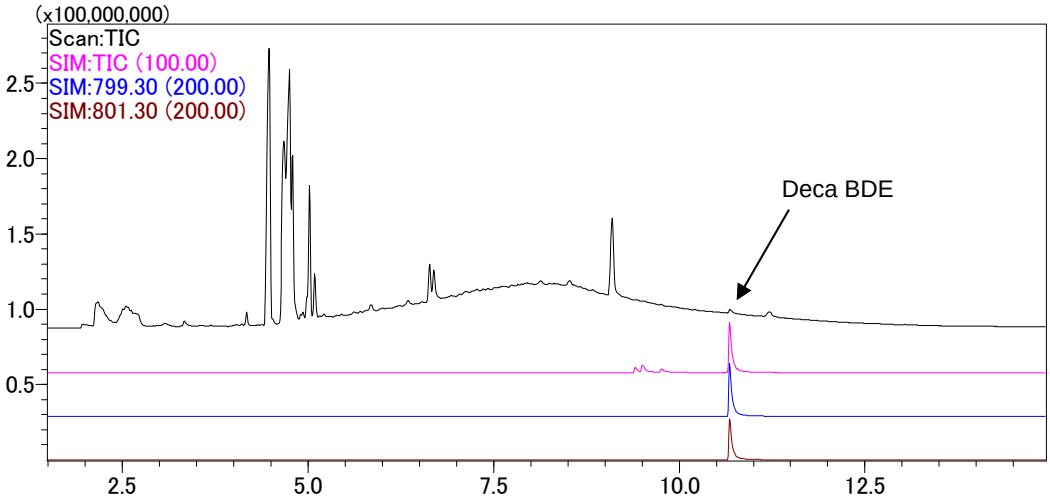
Table 1: Analysis Conditions

Pyrolyzer : EGA/PY-3030D Multi-Shot Pyrolyzer
GC-MS : GCMS-QP2010 Ultra
Column : Ultra ALLOY-PBDE (15 mL. × 0.25 mmI.D., 0.05 µm)

[Pyrolyzer]
Pyrolysis furnace temperature : 200 ℃ -> (20 ℃/min) -> 340 ℃(3 min)
Interface temperature : Manual（320 ℃）

[GC]
Vaporization chamber temperature :320 ℃
Column oven temperature : 80 ℃ (1 min) -> (40℃/min) -> 200 ℃
-> (15℃/min) -> 330℃ (5 min)
Injection mode : Split
Carrier gas : Helium
Control mode : Pressure (100kPa)
Purge flow rate : 3.0 ml/min
Split ratio : 20

[MS]
Interface temperature : 320 ℃
Ion source temperature : 230 ℃
Solvent elution time : 1.5 min
Tuning mode : Normal
Measurement mode : FASST
(simultaneous Scan/SIM measurements)
Scan mass range : *m/z* 35-1000
Scan event time : 0.3 sec
SIM monitoring *m/z* : 799.30, 801.30, 719.40, 721.40
SIM event time : 0.2 sec
SIM micro-scan width : 0.5 *u*



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