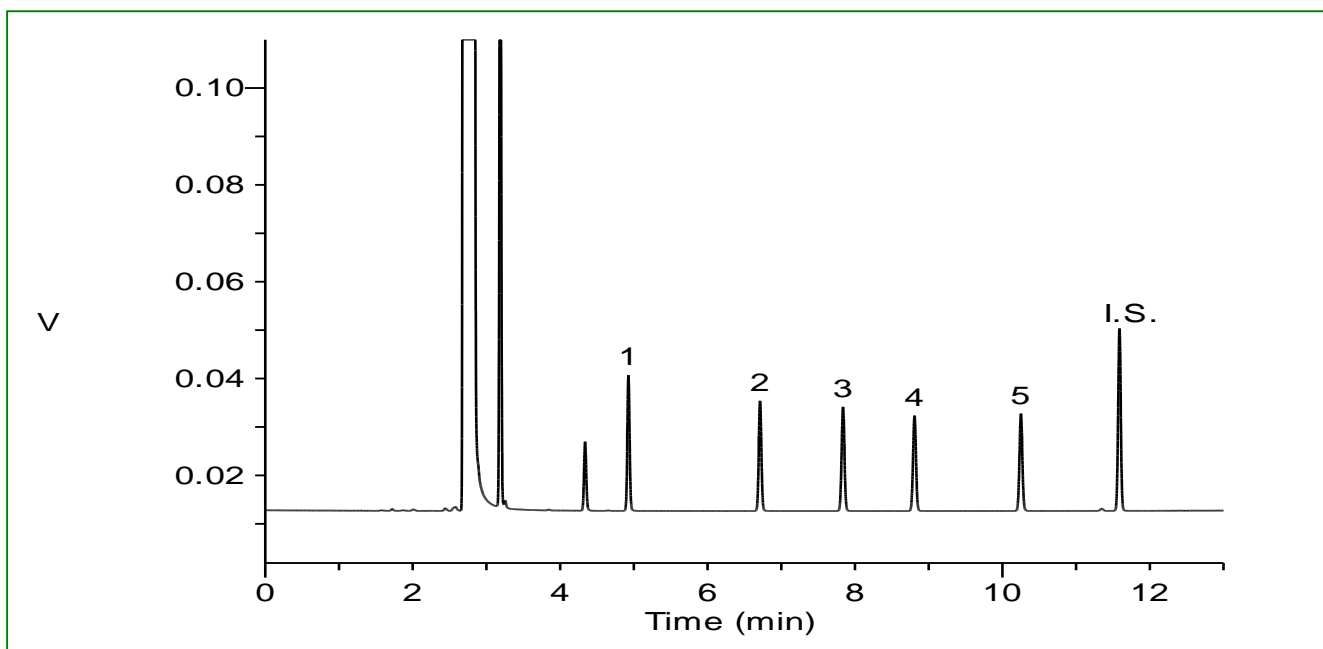


Analysis of Volatile Substances in Accordance with Testing of Polystyrene Materials - Using InertCap WAX

As a material test for synthetic resins that contain polystyrene as the main component, the total of volatile substances has been stipulated in the required specifications. This application note presents an example of the measurement of volatile substances in instant food containers using a GC/FID method with a capillary column in accordance with the test method defined in the Standards for Instruments and Containers and Packaging and the test method.

Example: Measurement of standard

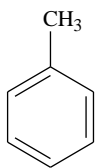


Conditions

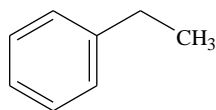
System	: GC - FID
Column	: InertCap WAX 0.25 mm I.D. x 30 m df = 0.50 μ m
Col.Temp.	: 60 $^{\circ}$ C - 4 $^{\circ}$ C/min - 100 $^{\circ}$ C - 10 $^{\circ}$ C/min - 200 $^{\circ}$ C
Carrier Gas	: He 120 kPa
Injection	: Split 1:20 220 $^{\circ}$ C
Detection	: FID Range 10 ¹⁰ 220 $^{\circ}$ C
Sample Size	: 25 μ g/mL in THF 1.0 μ L

Analyte:

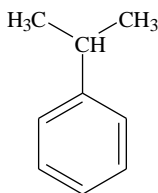
1. Toluene
 2. Ethylbenzene
 3. Cumene
 4. N-Propylbenzene
 5. Styrene
- I.S. Diethylbenzene



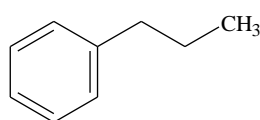
1. Toluene



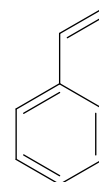
2. Ethylbenzene



3. Cumene

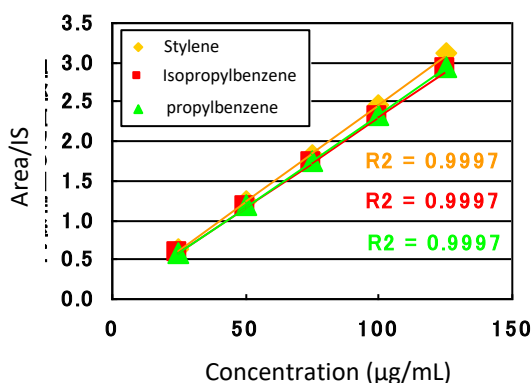
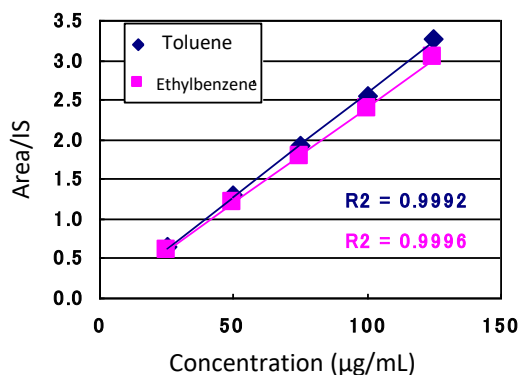


4. N-Propylbenzene



5. Styrene

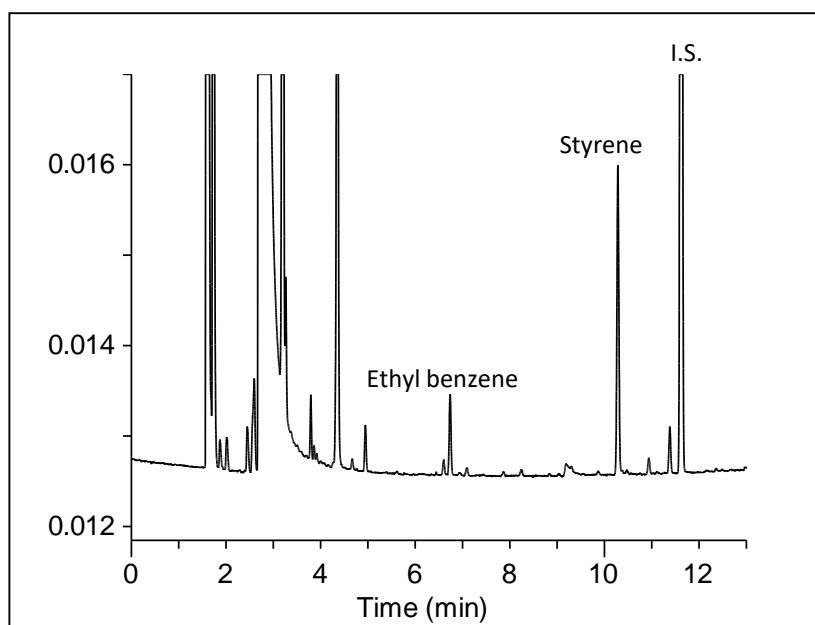
Calibration curve



Example: Measurement of instant noodle container

For measurement, 0.5 g of an instant noodle container was weighed and dissolved in 20 mL of THF.

Ethylbenzene and styrene were detected in the containers, but the value was found to be 1.0 mg/g or less, which is the accepted standard for expanded polystyrene using hot water.



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