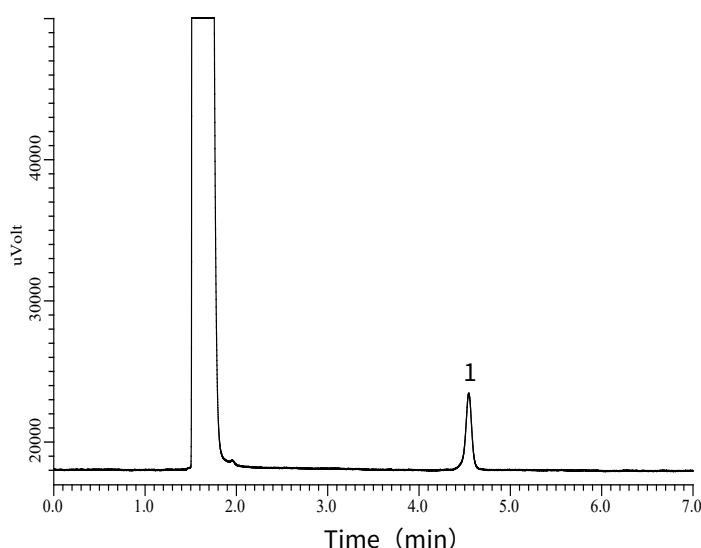


Analysis of ϵ -caprolactam in Plastic Products

Nylon (polyamide) is a polymer polymerized by amide bonds and include nylon 6 (a polymer of ϵ -caprolactam) and nylon 66 (a polymer of hexamethylenediamine and adipic acid). Nylon has excellent mechanical strength, such as tensile strength, tear strength, and stick strength, it is used in food packaging materials such as chilled frozen and retort foods.

In this application, packaging materials for commercially available frozen foods were extracted by immersion in an aqueous ethanol solution and eluted. Measurements were made according to the hygiene test method. A standard additive was also measured.

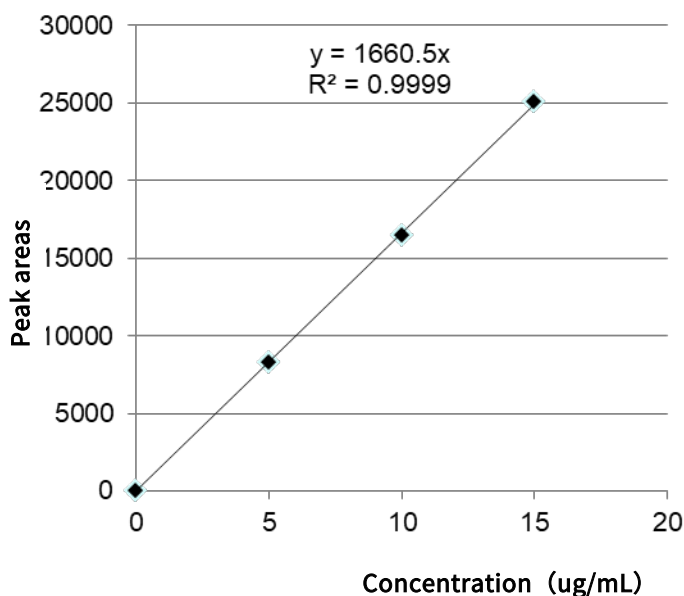
Example of standard solution measurement



GC Conditions

System : GC - FID
Column : InertCap 1
 0.32 mm I.D. x 30 m df = 5.00 μ m
Col.Temp. : 240 °C(7 min hold)
Carrier Gas : He 110 kPa
Injection : Split (1:10)
 Vent flow 18 mL/min 200 °C
Detection : FID 220 °C
Sample Size : 15 μ g/mL in 20% Ethanol solution
 1 μ L

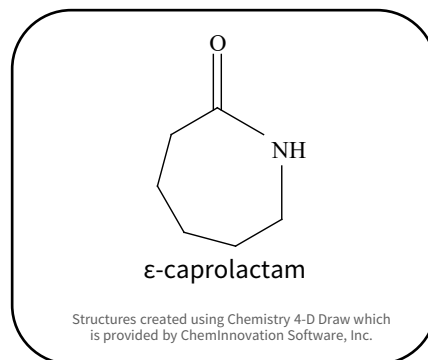
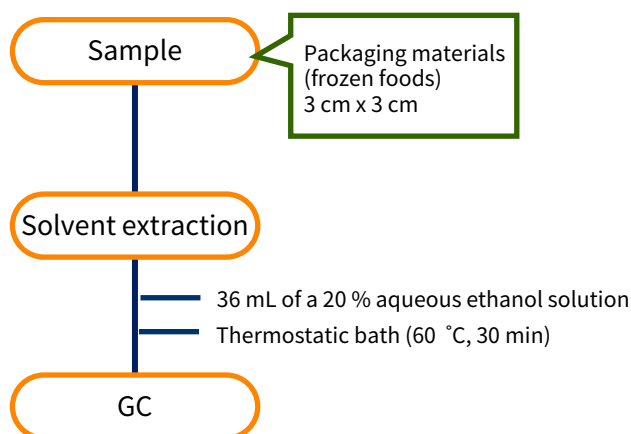
Calibration curve



<Results of repeated measurements>

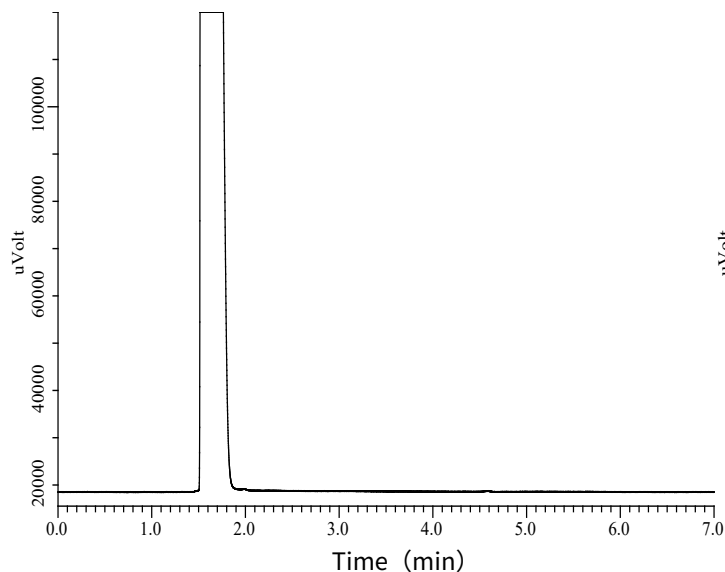
	5 μ g/mL	10 μ g/mL	15 μ g/mL
1	8551	16361	24666
2	8353	16340	24768
3	8121	16331	24902
4	8213	16734	25046
5	8065	16530	25470
6	8141	16426	25326
Ave.	8241	16454	25030
SD	182	156	316
RSD (%)	2.20	0.95	1.26

Preliminary processing procedure

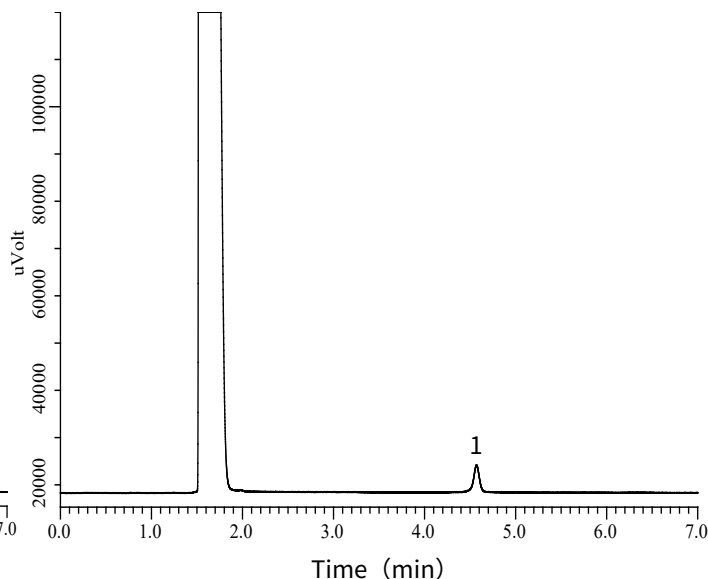


Example of actual sample measurement

Extract



Extract + ε-caprolactam solution



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