

LC-MS

Reversed-phase

Shim-pack™ Series

Shim-pack GIST C18-AQ HP

Evaluation of The Lot-to-Lot Variation of SHIMSEN Styra WAX in PFAS Analysis

Keywords: PFAS, SHIMSEN Styra SPE, preparation, EPA

This report evaluates the stability of different lots of SPE for PFAS analysis. This report presents the method and results of recovery tests when PFAS components (final concentration: 5 ng/L) were added to tap water. The results showed that the peak areas of all analytes remained stable.

■ Preparation

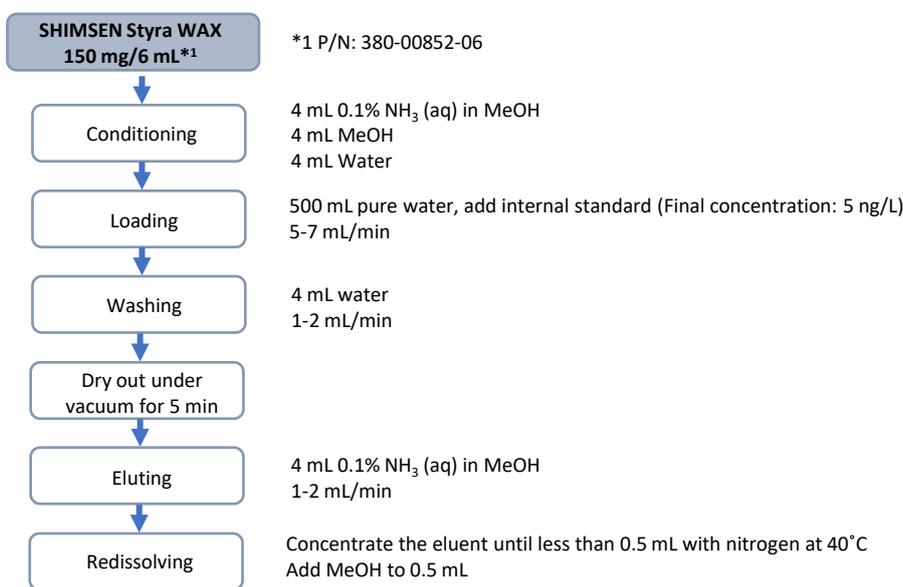


Fig. 1 Sample Preparation Flow

■ Analysis Conditions

Samples were measured according to the HPLC and MS analysis conditions shown in Table 1.

Table 1 Analysis Conditions

[HPLC conditions] (Nexera™ X3)				
Column	: Shim-pack™ GIST C18-AQ HP (150 mm × 2.1 mm I.D., 3 μm)*2			
Mobile phases	: A: 10 mmol/L Ammonium acetate in H ₂ O, B: Acetonitrile			
Gradient Program	: 25%B (0-1 min) – 100%B (26-30 min) – 25%B (30.01-34 min)			
Flow rate	: 0.2 mL/min			
Column Temp.	: 40°C			
Injection volume	: 5 μL			
[MS conditions] (LCMS-8060 NX)				
Ionization	: ESI (Negative mode)			
Probe Voltage	: -1 kV			
Nebulizing gas flow	: 3 L/min			
Drying gas flow	: 5 L/min			
Heating gas flow	: 15 L/min			
DL Temp.	: 150°C			
Heat Block Temp.	: 300°C			
Interface Temp.	: 250°C			
MRM transition	: PFOA	<i>m/z</i> 412.95>168.95	¹³ C ₈ -PFOA	<i>m/z</i> 420.95>375.95
	PFHxS	<i>m/z</i> 398.95>79.95	¹³ C ₃ -PFHxS	<i>m/z</i> 401.95>79.95
	PFOS	<i>m/z</i> 498.95>79.9	¹³ C ₈ -PFOS	<i>m/z</i> 506.95>79.95

*2 P/N: 227-30721-07

■ Spiked samples

Spiked samples (final concentration: 5 ng/L) were pretreated by three lots*³ of SPE according to the flow in Fig. 1, then measured using the analysis conditions in Table 1. The results showed that the peak areas of all compounds remained stable.

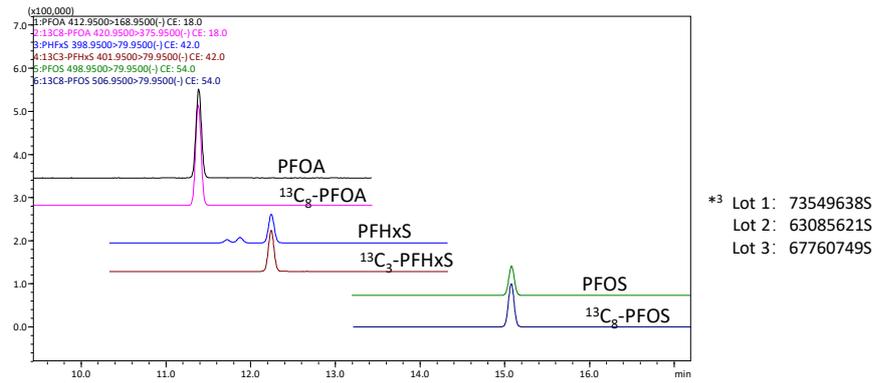


Fig. 2 MRM Chromatogram of spiked samples (final concentration: 5 ng/L)

Table 2 lists the recovery rates and relative standard deviations (%RSD) of each compound after pretreatment using three lots of SPE.

Table 2 Recovery rates and RSD Results

Compound	Spiked level (5 ng/L)			RSD (%)
	Lot 1 (%)	Lot 2 (%)	Lot 3 (%)	
PFOA	94.8	92.9	92.3	1.40
PFHxS	96.5	97.0	95.9	0.57
PFOS	96.9	96.2	95.4	0.78

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