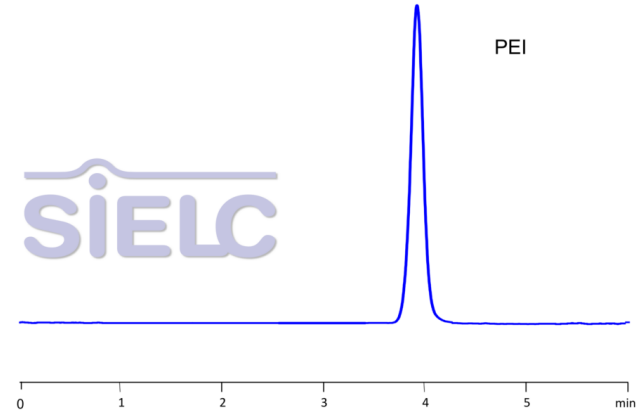
HPLC Method for Analysis of Polyethylenimine (PEI) on PEI Column



Column:	PEI
Column size:	4.6 × 250 mm, 5 µm
Column part number:	PEI-46.250.0510
Mobile phase:	MeCN/H2O - 40/60%
Buffer:	Ammonium Formate pH 3.0 – 20 mM
Flow rate	0.5 ml/min
Detection:	ELSD, the nebulizer and evaporator temperatures 40°C, with a gas flow rate of 1.6 Standard Liters per Minute (SLM)
Concentration:	1 mg/ml
Injection Volume:	2 µL
Diluent:	Mobile Phase + Buffer
Limit of Detection:	1 ppm

Large multi-charged molecules such as Polyethyleneimine (PEI) can be very difficult to separate and retain on standard columns. PEI is a complex mixture of the molecules of different sizes and geometries with various biological and pharmaceutical applications, such as in tissue cultures, as a transfection reagent, and in carbon dioxide capture. PEI also lacks a UV chromophore, making it difficult to analyze with a standard UV detector.

SIELC's new PEI column was designed specifically for the analysis of PEI by ion-exclusion and size-exclusion mechanisms. This method uses a simple isocratic mobile phase of Acetonitrile (MeCN) and water with an ammonium formate (AmFm) buffer. This method can be analyzed with high resolution and peak symmetry via any evaporative detector (including ELSD, CAD, and ESI-MS), removing the need for the use of a Copper(II) complex.

Method Parameters

Column	PEI, 4.6 x 250 mm, 5 µm, 100 Å, dual ended
Mobile Phase	MeCN/H2O – 40/60%
Buffer	Ammonium Formate pH 3.0 – 20 mM
Flow Rate	0.5 mL/min
Detection	ELSD, the nebulizer and evaporator temperatures 40°C, with a gas flow rate of 1.6 Standard Liters per Minute (SLM)

Quelle: https://sielc.com/hplc-determination-of-pei