

Reversed-Phase Silica Sorbents

Product Overview

Introduction

Peptide- and nucleotide-based therapeutics offer high selectivity, efficacy, relatively good safety, and tolerability. With the recent launch of several high-revenue GLP-1 peptide drugs, the demand for highly stable purification media in R&D and manufacturing has become particularly critical.

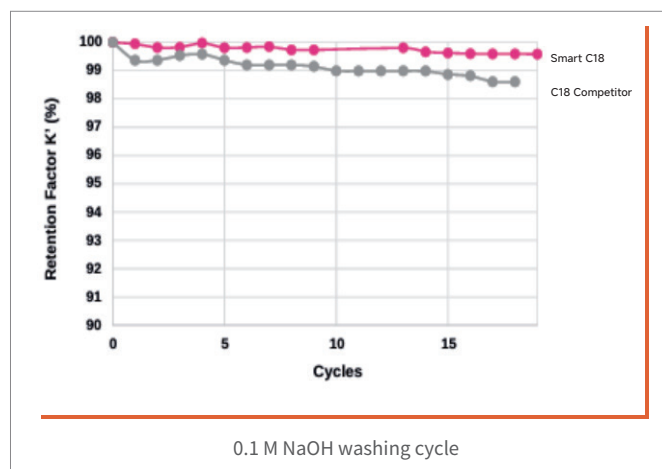
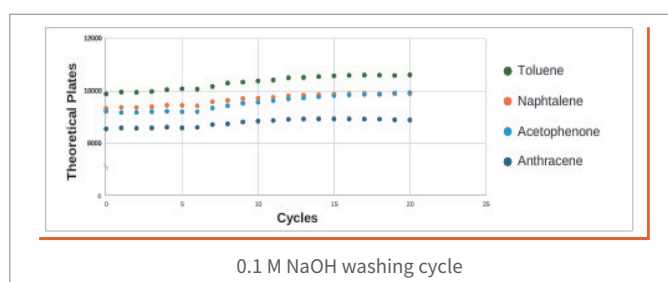
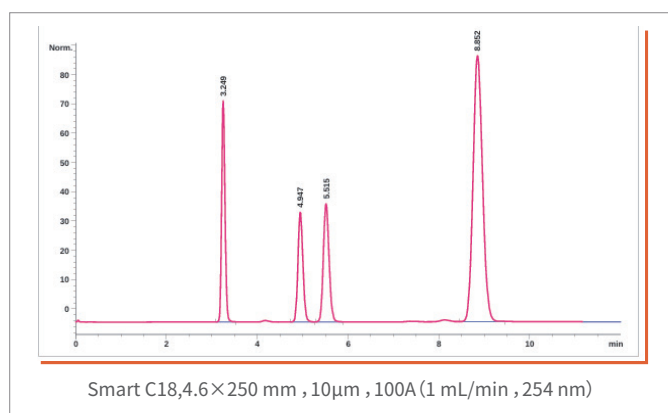
Smart Lifescience introduces Smart C18/C8 – a novel sorbent for peptide and nucleotide purification. It delivers stronger alkaline resistance in regeneration cycles, meeting stringent regulatory cleaning protocols (pH 13, 0.1 M NaOH in 50% ACN), and provides excellent batch-to-batch consistency, maximizing return on investment per kilogram of sorbent used.

Smart C18/C8 performs excellently in purifying GLP-1 receptor agonists such as Liraglutide, Semaglutide, and Tirzepatide. It effectively removes process-related impurities including amino acid deletion/insertion, side-chain modification, racemization, and aspartic acid formation.

Chemical Stability Under Extreme pH Conditions

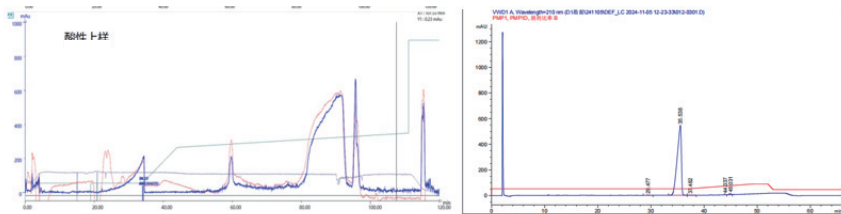
A mixture of reference compounds (acetophenone, toluene, decalin, anthracene) was used to evaluate the column under multiple cleaning cycles with 0.1 M NaOH in 50% acetonitrile (pH 13). The following wash conditions were applied for 20 cycles:

- 1) **Alkaline wash (pH 13):** 15 min, 1 mL/min, ACN/Water (0.1 M NaOH) (50:50) (6 CV)
- 2) **Acid wash (pH 3-3.5):** 15 min, 1 mL/min, ACN/Water (acetic acid) (50:50) (6 CV)
- 3) **Re-equilibration:** 15 min, 1 mL/min, 100% ACN (6 CV)



Case Studies

Semaglutide is modified with a fatty acid side chain to extend its half-life, which significantly increases hydrophobicity. To meet purity requirements, C18 reverse-phase chromatography is commonly used for such fatty acid-modified GLP-1 drugs. In this study, Smart C18-10 was used to purify Semaglutide. The acetic acid + acetonitrile mobile phase system, validated repeatedly, showed excellent purification results and has been successfully applied in multiple projects.

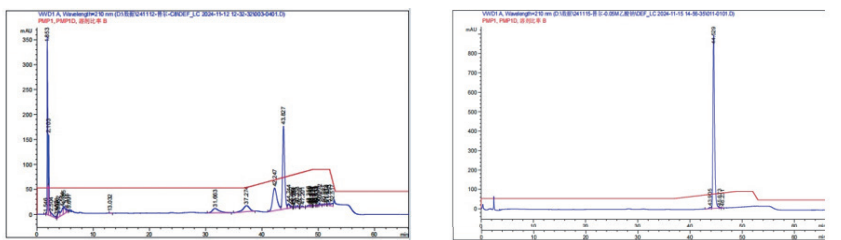


Column: Smart C18 , 250 × 10 mm, 10 μm, pH 3.5

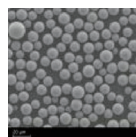
Analysis results of semaglutide samples by HPLC

Process development for Tirzepatide purification

Smart C18-10 (10 μm) is used. The process is straightforward, employs a salt-free mobile phase of acetic acid in water + acetonitrile, purifies the target sample effectively, and reduces the need for subsequent desalting.



Mechanical Stress



SEM Imaging of Reversed-Phase Silica

After three repeated packing/unpacking cycles in a 20 mm diameter preparative column, the silica beads maintained perfect spherical morphology with smooth surfaces, no cracks or pits.

Product Information

Product Name	Particle Size (μm)	Pore Size(Å)	Surface Area (m ² /g)	Carbon Load (%)	Bonded Phase	pH Range
Smart C8-10-100	10	100	360-440	14	C8	2-9.5
Smart C8-10-150	10	150	220-270	10	C8	2-9.5
Smart C8-10-120	10	120	290-340	12	C8	2-9.5
Smart C18-10-100	10	100	360-440	22	C18	2-9.5
Smart C18-10-150	10	150	220-270	18	C18	2-9.5
Smart C18-10-120	10	120	290-340	20	C18	2-9.5

Product Name	Catalog Number	Bulk Sorbent Specifications	Pre-packed Column Specifications
Smart C8-10-100	SH020	Available in standard packaging of 25g, 100g, 500g, and 1kg	4.6/10/20mm×250mm
Smart C18-10-100	SH021		
Smart C8-10-150	SH030		
Smart C18-10-150	SH031		
Smart C8-10-120	SH043		
Smart C18-10-120	SH044		

* We also tailor pre-packed columns to your needs, with adjustable dimensions.

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