

DIAMOND LIKE CARBON

CHROMATOGRAPHY COLUMNS

From aerospace materials to chromatography columns, diamond coating technology has brought about a revolutionary breakthrough in the field of chromatography!

THE ULTIMATE EXPERIENCE

- Enhancing the inner surface of the chromatography column with strong hydrophobicity overcomes the adverse effects of the column wall on separation.
- The high hardness and significant tensile properties of the diamond coating resolve the conflict between column mechanical strength and the influence of metal ions on separation.
- Ideal for preparation and purification of biological samples, such as proteins, polysaccharides, and nucleic acids.

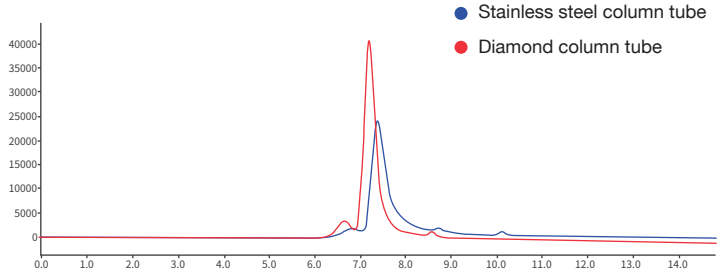
P/N	Product Name	Description
00237-33943	Xtimate® DLC SEC-300	4.6×250mm, 5μm
00201-11910	Ultisil® DLC UHPLC XB-C18	2.1×50mm, 1.8μm



<<CHROMATOGRAPHIC APPLICATION

DETECTION OF BOVINE SERUM ALBUMIN

OVERLAP CHROMATOGRAM



Column	Xtimate® SEC-300 (4.6×250mm, 5μm, Stainless Steel Column Tube) Xtimate® DLC SEC-300 (4.6×250mm, 5μm,Diamond like carbon column)
Mobile Phase	Dissolve 8.99g of anhydrous disodium hydrogen phosphate and 10.65g of anhydrous ammonium dihydrogen phosphate in water, adjust pH to 6.80.
Detection Wavelength	215nm
Temperature	30°C
Flow Rate	0.35mL/min
Injection Volume	5μL

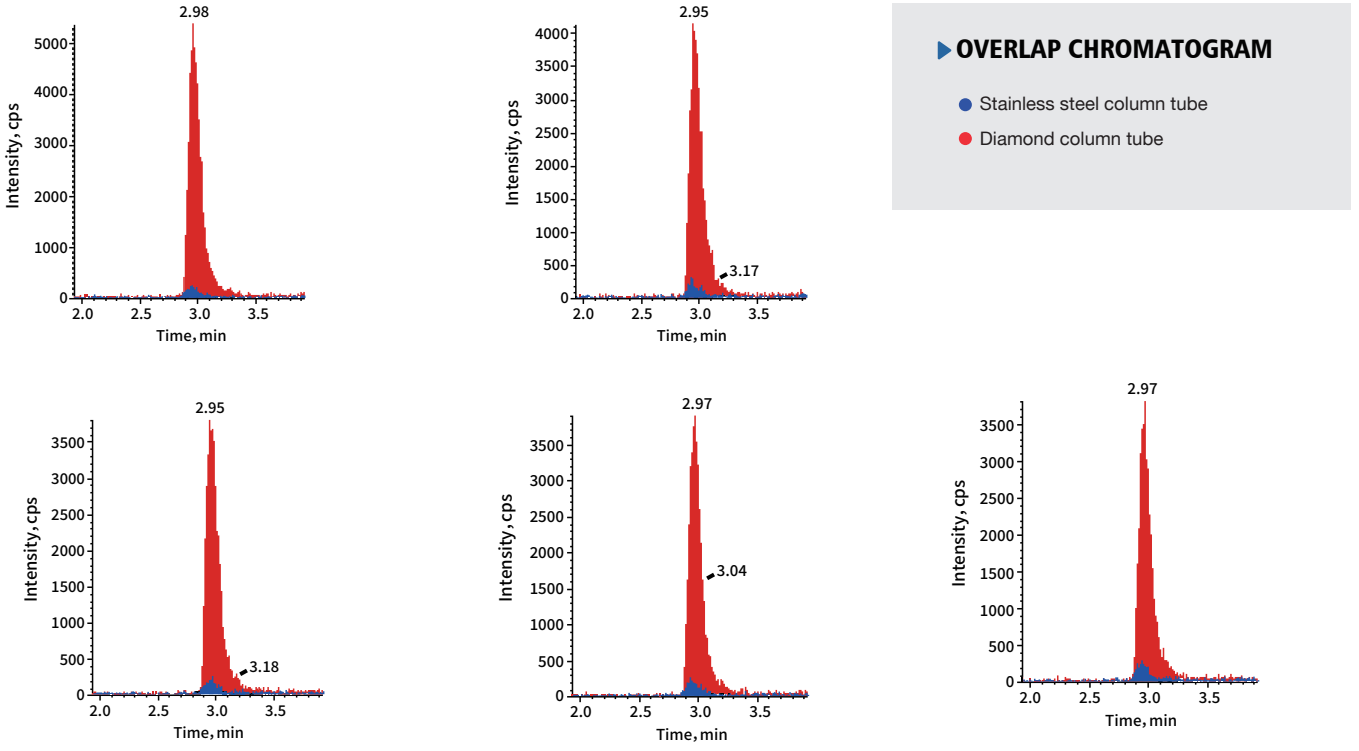
SAMPLE SOLUTION CONFIGURATION

Sample Solution:A precise amount of Bovine Serum Albumin (BSA) was accurately weighed, dissolved in the mobile phase, and diluted to achieve a sample solution in which every 1mL contained 0.1mg of the sample

CONCLUSION: The Diamond like carbon column exhibited significantly increased response values.

CHROMATOGRAPHIC APPLICATION

DETECTION OF DEXAMETHASONE SODIUM PHOSPHATE



OVERLAP CHROMATOGRAM

- Stainless steel column tube
- Diamond column tube

CONDITIONS

Instrument Model	AB Sciex TRIPLE QUAD 4500
Column	Ultisil® UHPLC XB-C18,(2.1×50mm, 1.8μm, stainless steel column tube) Ultisil® DLC UHPLC XB-C18,(2.1×50mm1.8μm, diamond column tube)
Mobile Phase	A: 5mmol/L formic acid solution; B: Ethyl-methanol (1:1)
Flow Rate	0.2mL/min
Temperature	30 C
Injection Volume	2μL
Sample Configuration	100ng/mL

MASS SPECTROMETRY CONDITIONS

Ion Source	Electrospray Ionization (ESI)
Scanning Mode	Positive Ion Scan
Detection Mode	Multiple Reaction Monitoring (MRM)

Multiple Reaction Monitoring (MRM) Parameters

Compound	Parent Ion (m/z)	Parent Ion (m/z)	Parent Ion (m/z)
Dexamethasone Sodium Phosphate	473.0	435.0*	15
		337.0	20

CONCLUSION:

1.The diamond column minimizes the specific adsorption behavior of the chromatographic column tube, achieving efficient separation while showing higher sensitivity and response values.

2.The peak signal of the diamond column can be increased several times, indicating that it has obvious advantages in testing metal-sensitive compounds.

Welch Materials, Inc.

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