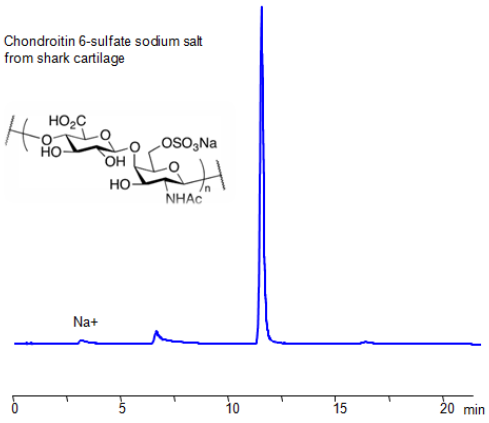
HPLC Method for Analysis of Chondroitin sulfate on BIST A Column



Column:	BIST™A	
Column size:	4.6 × 50 mm, 5 µm	
Column part number:	TA-46.50.0510	
Mobile phase:	Step Gradient:	
	Time, min	MeCN %
	0 → 4.9	60
	5→ 9.9	55
	10 → 14.9	50
	15 → 20	45
Buffer:	N,N'-Dimethylpiperazine formate 5.0 mM pH 4.0	
Flow rate:	1.0 mL/min	
Detection:	ELSD, 70ºC	

Separation type: Bridge Ion Separation Technology, or BIST™ by SIELC Technologies

Chondroitin sulfate is a sulfated glycosaminoglycan (GAG) composed of chains of alternating sugars (N-acetylgalactosamine and glucuronic acid). It is one of the major components of cartilage and is found in various tissues in the body, including the skin, bone, and cornea.

Administration and Dosage : Chondroitin sulfate is available in oral tablet or capsule form, often in combination with glucosamine.

Using SIELC's newly introduced BIST™ method, however, chondroitin sulfate can be retained, analyzed on a negatively-charged, cation-exchange BIST™ A column. There are two keys to this retention method: 1) a multi-charged, positive buffer, such as N,N'-Dimethylpiperazine (DMP), which acts as a bridge, linking the negatively-charged anion analytes to the negatively-charged column surface and 2) a mobile phase consisting mostly of organic solvent (such as MeCN) to minimize the formation of a solvation layer around the charged analytes. Other positively-charged buffers that can generate BIST™ include TMDAP, Calcium acetate, and Magnesium acetate. Using this new and unique analysis method, chondroitin sulfate retained with high selectivity and great peak shape. This method can be detected and is compatible with ELSD, CAD, and Mass Spectrometry (LC-MS).

Method Parameters

Column	BIST A, 4.6 x 50 mm, 5 µm, 100 Å, dual ended
Mobile Phase	Step gradient MeCN
Buffer	N,N'-Dimethylpiperazine formate 5.0 mM pH 4.0
Flow Rate	1.0 mL/min
Detection	ELSD, the nebulizer and evaporator temperatures 70 °C, with a gas flow rate of 1.6 Standard Liters per Minute (SLM) (MS- compatible mobile phase)

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