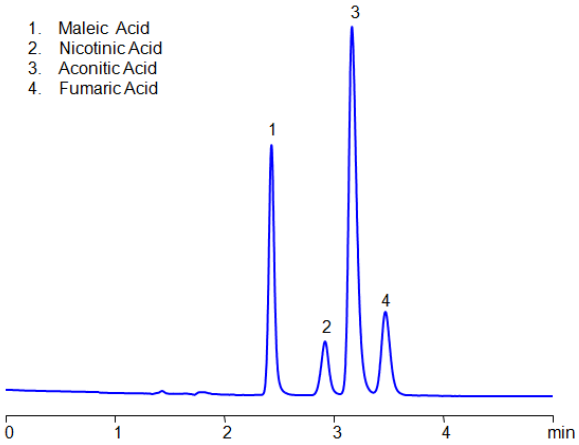
HPLC Method for Analysis of Maleic Acid, Nicotinic Acid, Aconitic Acid and Fumaric Acid on BIST™ A+ Column



Column:	BIST™ A +
Column size:	4.6 × 150 mm, 5 µm
Column part number:	TAP-46.150.0510
Mobile phase:	MeCN - 70%
Buffer:	TMDAP Phosphate – 10 mM pH 4.0
Flow rate:	1.0 mL/min
Detection:	UV 200 nm

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

The maleate ion from Maleic acid is a popular ingredient as the maleate salt in several different drugs, including Methergine, Pyrilamine, and Carfenazine, among others. Nicotinic acid, also known as Niacin or Vitamin B3, is an essential nutrient for the human body and is sometimes taken as a treatment for high cholesterol. Aconitic acid is a key intermediary in the citric acid cycle, and is also used a flavoring agent and in the production of rubbers and plastics. Fumaric acid is a popular preservative and food additive with a fruit-like taste. Using SIELC's newly introduced BIST™ method, a mixture of these organic acids can be separated on a negatively-charged, cation-exchange BIST™ A+ column, contrary to conventional chromatographic wisdom. There are two keys to this retention method: 1) a multi-charged, positive buffer, such as N,N,N',N'-Tetramethyl-1,3-propanediamine (TMDAP), 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.

Method Parameters

Mobile Phase	MeCN – 70%
Buffer	TMDAP (N,N,N',N'-Tetramethyl-1,3-diaminopropane) Phosphate – 10 mM pH 4.0
Flow Rate	1.0 mL/min
Detection	UV 200 nm

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