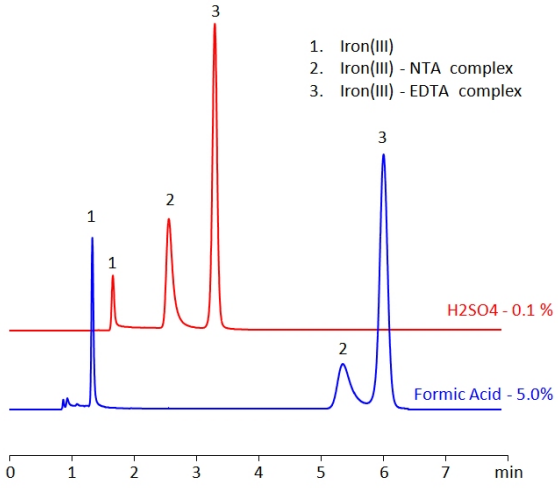
HPLC Determination of Nitrilotriacetic acid (NTA) and Ethylenediaminetetraacetic acid (EDTA) on Newcrom BH Column



Column:	Newcrom BH
Column size:	4.6 × 150 mm, 5 µm
Column part number:	NBH-46.150.0510
Mobile phase:	MeCN/H_2O –2/98%
Buffer:	H_2SO_4 or Formic Acid
Flow rate:	1.0 mL/min
UV detection:	275 nm

High Performance Liquid Chromatography (HPLC) Method for Analysis of Nitrilotriacetic acid , EDTA (Ethylenediaminetetraacetic Acid) .

NTA Standards Solution A: For the preparation of the NTA standard solution, 5 mg of NTA was accurately weighed and transferred into a 5 mL volumetric flask and dissolved in water with sonication. The NTA stock solution (1 mg/mL) should be stored in a cold, dark place and can be used for upto a week to prepare standards of required concentration.

Nitrilotriacetic acid (NTA) and Ethylenediaminetetraacetic acid (EDTA) are two common chelating agents used often in laboratory and medical testing. They are often used to bind to, identify, and analyze metal ions. Below is a method we developed to retain and measure Fe (III) using NTA and EDTA complexes on a Newcrom BH mixed-mode column, with a mobile phase of acetonitrile (MeCN), water, and a buffer of either sulfuric acid (H2SO4) or formic acid:

EDTA Standards Solution B: For the preparation of the EDTA standard solution, 5 mg of EDTA was accurately weighed and transferred into a 5 mL volumetric flask and dissolved in 0.001N NaOH water solution with sonication or magnetic stirrer mixing. Filtered The EDTA stock solution (1.0 mg/mL) should be stored in a cold dark place and can be used for a week to prepare standards of required concentration. NTA Standard – Solution A: For the preparation of the NTA standard solution, 5 mg of NTA was accurately weighed and transferred into a 5 mL volumetric flask and dissolved in water with sonication. The NTA stock solution (1 mg/mL) should be stored in a cold, dark place and can be used for upto a week to prepare standards of required concentration.

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Iron(III) chloride – Solution C: The standard stock solution of Iron(III) chloride (10 mg/ml) was prepared in water. 50 mg of FeCl3 was accurately weighed and transferred into a 5 mL volumetric flask and dissolved in water, with sonication if needed.

General procedure for Ferric NTA and EDTA complex analysis: To make a sample for analysis, mix 100 µL each Solution A and Solution B (or unknown sample) with 100 µL Solution C and 700 µL of water. Place this mixture in a plastic HPLC vial for analysis. Setup instrument and column according to the method provided.

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Nitrilotriacetic acid , EDTA (Ethylenediaminetetraacetic Acid) can be retained and analyzed using the Newcrom BH stationary phase column. The analysis utilizes an isocratic method with a simple mobile phase consisting of water and acetonitrile (MeCN). Detection is performed using UV.

Method Parameters

Column	Newcrom BH, 4.6 x 150 mm, 5 µm, 100 Å, dual ended
Mobile Phase	MeCN/H2O – 2/98%
Buffer	H2SO4or Formic Acid
Flow Rate	1.0 mL/min
Detection	UV 275 nm

Quelle: https://sielc.com/hplc-determination-of-nitrilotriacetic-acid-nta-and-ethylenediaminetetraacetic-acid-edta