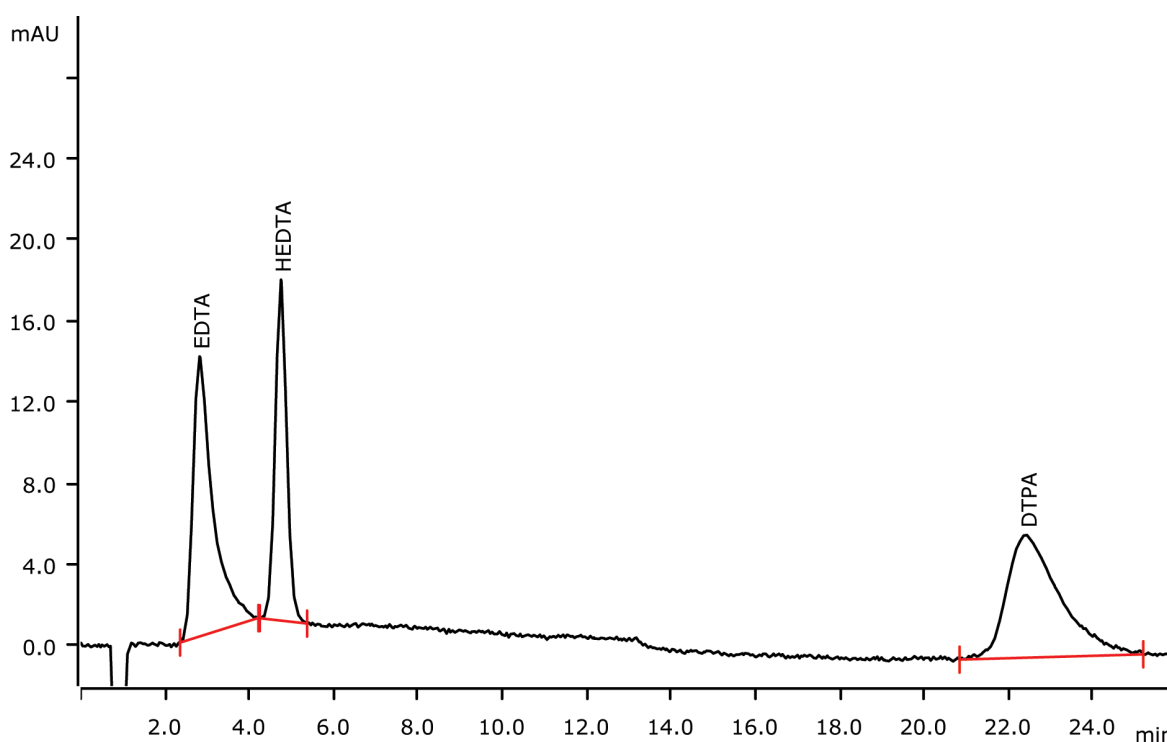


Determination of EDTA, HEDTA and DTPA according to EN 13368-1



Complexing agents are used in fertilizers to bind trace nutrients such as cobalt, iron, manganese, etc. EN 13368-1 describes the determination of EDTA, HEDTA, and DTPA. As pre-column preparation, Fe^{3+} is added to build complexes with the three agents. The complexes are separated on an anion-exchange column and detected by UV/VIS after addition of perchloric acid.

Results

	Concentration [mmol/L]
EDTA (ethylenediaminetetraacetic acid)	0.05
HEDTA (N-(hydroxyethyl)-ethylenediaminetriacetic acid)	0.05
DTPA (diethylenetriaminepentaacetic acid)	0.05

Sample

Standard solution

Sample preparation

Pre-column preparation, injection applying Metrohm Inline Ultrafiltration

Columns

Metrosep A Supp 3 - 250/4.6	6.1005.320
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Solutions

Eluent	50 mmol/L nitric acid 50 mmol/L sodium acetate
Pre-column reagent	12.4 mmol/L iron(III) nitrate 150 mmol/L nitric acid
Post-column reagent	2% perchloric acid

Analysis

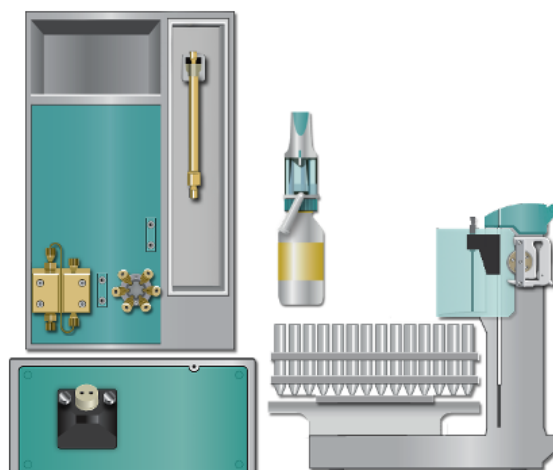
UV/VIS detection after post-column reaction

Parameters

Flow rate	1.0 mL/min
Flow rate PCR	0.18 mL/min
Injection volume	50 µL
P _{max}	20 MPa
Recording time	26 min
Column temperature	Ambient
PCR temperature	Ambient
Wavelength (direct)	330 nm

Instrumentation

930 Compact IC Vario pro Oven/Deg	2.930.2160
944 Professional UV/VIS Detector Vario	2.944.0010
919 IC Autosampler plus	2.919.0020
Reactor complete	6.2845.200
800 Dosino	2.800.0010
Dosing Unit 5 mL	6.3032.150
IC equipment: Inline Ultrafiltration	6.5330.110



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