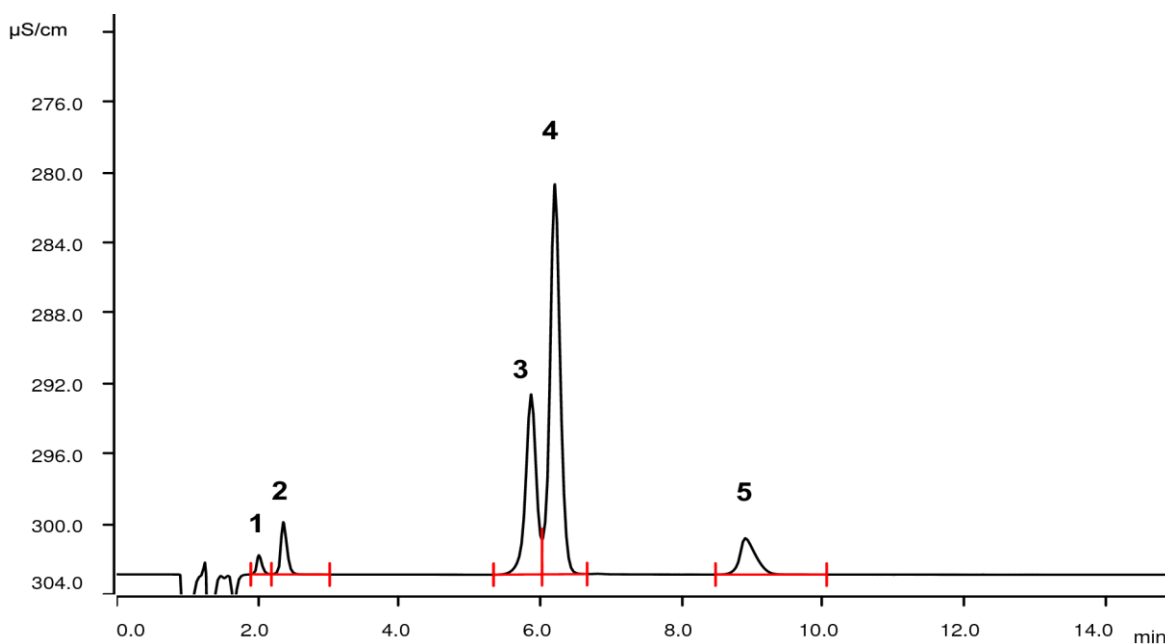


# Aspartic acid, glutamic acid, TRIS, sodium, and potassium in cardioplegic solution



A cardioplegic solution protects the ischemic myocardium from cell death. It is applied together with hypothermia e.g. in open heart surgery. Here the simultaneous determination of aspartic acid, glutamic acid, tris(aminomethyl)aminomethane (TRIS), sodium and potassium in such a solution is given. The two amino acids can be determined as they are partially in the triple protonated ammonium form at the eluent pH. Determination is achieved by direct conductivity detection.

## Results

Analytes	Conc. [mmol/L]	Conc. std. [mmol/L]	RSD [%, N = 5]
1 Aspartic acid	0.669	0.669	0.13
2 Glutamic acid	0.636	0.598	0.06
3 TRIS	0.768	0.761	0.15
4 Sodium	2.012	2.174	0.08
5 Potassium	0.341	0.383	0.18

## Sample

Cardioplegic solution

## Sample preparation

Direct injection after Metrohm Inline Ultrafiltration.

## Columns

Metrosep C 4 - 150/4.0	6.1050.420
Metrosep C 4 Guard/4.0	6.1050.500

## Solutions

Eluent	3.33 mmol/L tartaric acid 10% acetone
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## Instrumentation

930 Compact IC Flex Oven/Deg	2.930.2160
IC Conductivity Detector	2.850.0010
858 Professional Sample Processor	2.858.0020
IC equipment: Inline Ultrafiltration	6.5330.110

## Analysis

Direct conductivity detection

## Calibration

Single point, levels selected to the expected sample concentration

## Parameters

Flow rate	0.9 mL/min
Injection volume	20 $\mu$ L
P <sub>max</sub>	25 MPa
Recording time	15 min
Column temperature	35 °C

