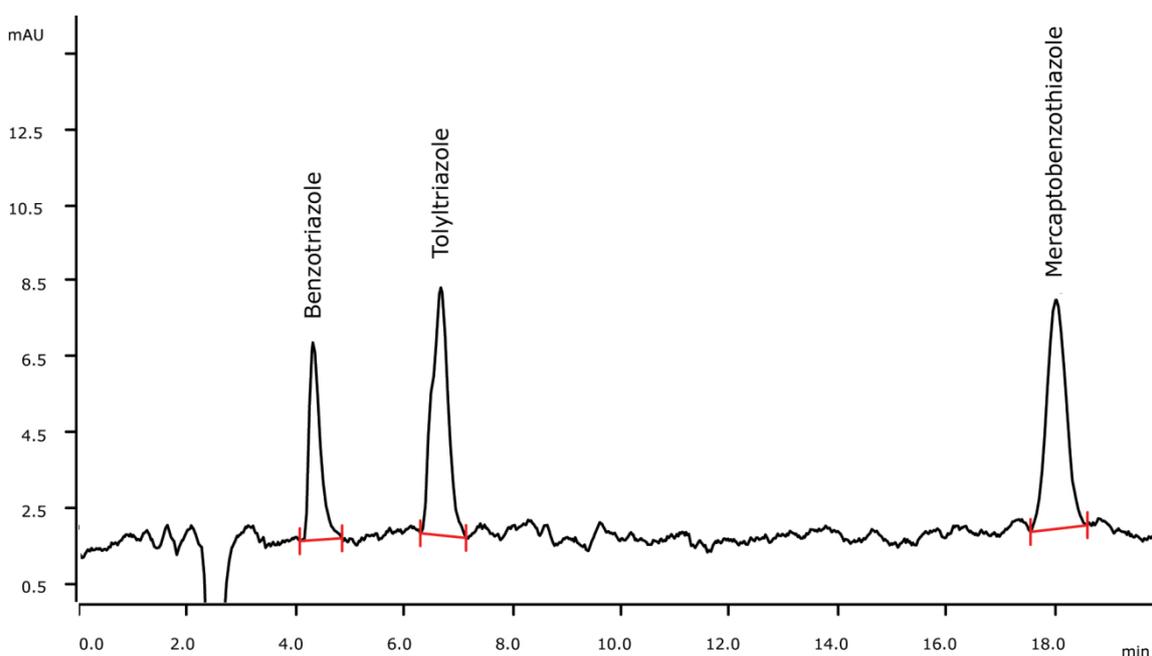


# Corrosion inhibitors in cooling water



In industrial cooling water systems, copper and its alloys are widely used because of their superior heat transfer properties. These materials are, however, susceptible to corrosion. Azoles are commonly used to protect copper and its alloys from corrosion. These corrosion inhibitors are quantified by ion chromatography with UV/VIS detection.

## Results

	Concentration spiked [mg/L]	Concentration found [mg/L]	RSD (n = 6) [%]
Benzotriazole	1.00	1.07	2.04
Tolytriazole	1.00	1.04	3.33
Mercaptobenzothiazole	1.00	1.05	3.46

## Sample

Artificial cooling water sample spiked with corrosion inhibitors

## Sample preparation

Inline Ultrafiltration

## Columns

ProntoSil 120-5-C18 AQ - 150/4.0	6.1008.100
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Prontosil 120-3-C18 AQ Guard/4.0	
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## Solutions

Eluent	0.5% phosphoric acid 25% acetonitrile
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Simulated cooling water	500 mg/L calcium 250 mg/L magnesium 354 mg/L chloride 240 mg/L sulfate pH = 7.2
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## Parameters

Flow rate	0.8 mL/min
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Injection volume	20 µL
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P <sub>max</sub>	120 MPa
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Recording time	20 min
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Column temperature	40 °C
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Light source (UV)	Deuterium lamp
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Wavelength	214 nm
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## Analysis

UV detection
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## Instrumentation

881 Compact IC pro – Cation	2.881.0010
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858 Professional Sample Processor – Pump	2.858.0020
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887 Professional UV/VIS Detector	2.887.0010
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