

The presence of numerous military and defense sites around the world, both active and decommissioned, has resulted in the presence of explosives compounds in locations where they can enter the water supply. In the US, the evaluation of sites for potential contamination is carried out by the United States Environmental Protection Agency (US EPA), US Department of Defense, and US Department of Energy in support of Superfund, RCRA, and Base Closure environmental programs.

HPLC CONDITIONS

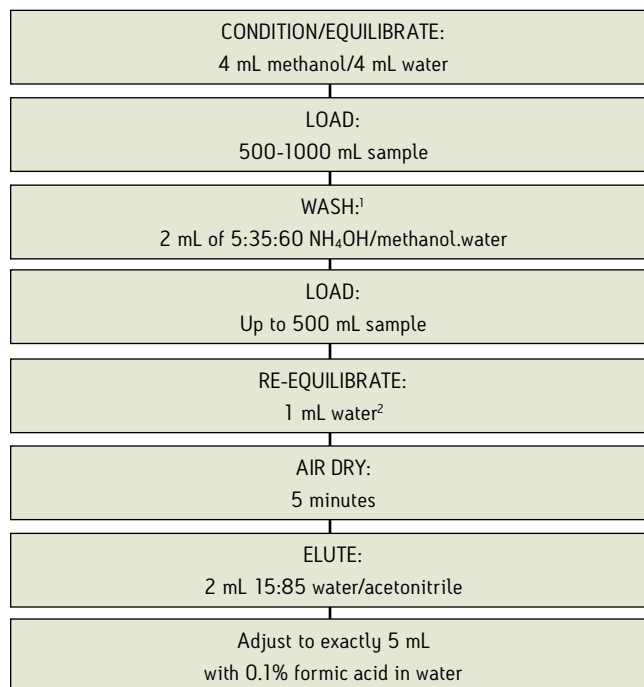
Instrument: Waters Alliance® HPLC system with 2487 Dual λ Absorbance detector
 Eluent: 10 mM ammonium formate/isopropanol
 Column: XTerra® Phenyl, 3.5 μ m, 2.1 x 150 mm @ 40 °C
 Injection: 10 μ L of standard
 Flow rate: 0.25 mL/min
 Detection: UV @ 254 nm
 Data: Waters Empower™ software

SAMPLE PREPARATION

Sample Matrix: Groundwater and surface water, low concentration
 Sample Prep: Solid-phase extraction using a 500 mL sample Porapak™ reverse-phase sorbent (RDX), elute with acetonitrile

ALTERNATE SAMPLE PREPARATION

Oasis® HLB Extraction Method
 Oasis HLB Extraction Cartridge, 6 cc, 200 mg



¹ This wash step will remove humic and other interferences.

² Tetyl is unstable in base-this step removed NH₄OH prior to elution.

STANDARD PREPARATION

Dilute 100 μ L of AccuStandard® mix (M-8330-R) to 10 mL with eluent for a working 10 ppm standard mixture.

ELUENT PREPARATION

10 mM ammonium formate/isopropanol

Dissolve 0.631 g of ammonium formate in 100 mL water. Transfer to a 1 L volumetric flask. Add 200 mL of Isopropanol. Dilute to the mark with water and mix well. Carefully pH to 3.8 with formic acid, then filter and degas.

Continue...

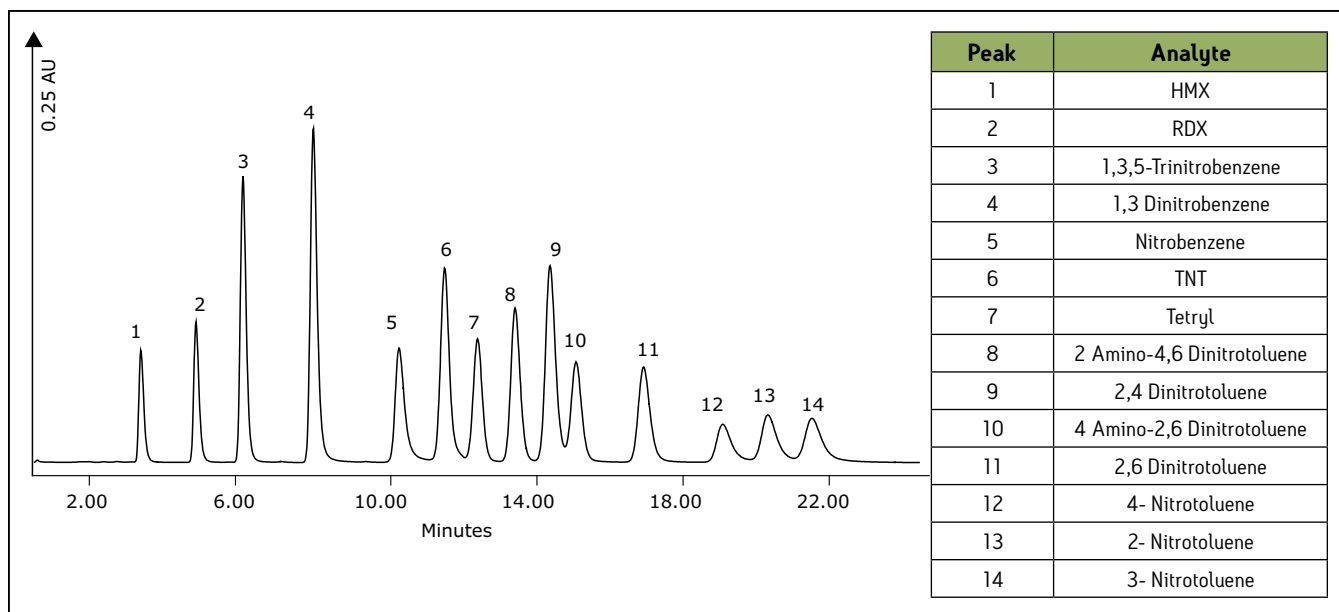


Figure 1: Standard chromatogram, 10 ppm each analyte.

ORDERING INFORMATION

Related Parts	Part Number
XTerra Phenyl, 3.5 μ m, 2.1 x 150 mm	186001181
Porapak™ Reverse-Phase Sorbent (RDX)	WAT047220
UCMR2 Explosives in Water CRM	186004261

Related Documents	Literature Code
The Science of ACQUITY UPLC Applied to Environmental Analyses of PAHs and Explosives in Water	720001398EN
Explosives in River Water – Oasis Solution	WA31764.82
An Improved Method for Determination of Nitroaromatic and Nitramine Explosives in Aqueous Samples	WA20717
High Speed Explosives Monitoring using UPLC	720000950EN

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