



## SPE Application Note for Nitroaromatic Explosives from Water

This method was developed for the extraction of nitroaromatic explosives from water samples using a non-polar retention mechanism. The elution solvent was optimized for subsequent HPLC analysis.

### EXTRACTION PROCEDURE

**ISOLUTE® SPE Column:** ENV+ 200 mg/6 mL Part # 915-0020-C

**Pre-treatment:** None.

**Solvation:** Solvate the column with tetrahydrofuran (THF) as follows:- apply 2 mL to the column, allow to soak for 4 mins, then apply a further 4mL at a flow rate of 5 mL/min.

**Equilibration:** Rinse the column with distilled deionized water (4 mL) at a flow rate of 5 mL/min.

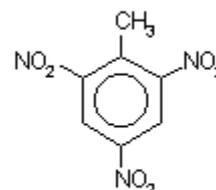
**Sample application:** Apply the sample (1 L) to the column at a flow rate of 30 mL/min Rinse the sample container with acetone (5 mL). Dilute this with distilled deionized water (95 mL), mix and apply to the column.

**Interference elution:** Rinse the column with distilled deionized water (5 mL). Dry the column thoroughly with nitrogen for 10 mins.

**Analyte elution:** Elute analytes with acetonitrile (2 x 1.5 mL). Apply the first aliquot, allow to soak for 4 mins, and apply the second aliquot.

Dilute the eluent 1:1 with distilled deionized water prior to HPLC analysis.

**Structure** Various. TNT is shown as an example.



**Structural considerations** The analytes are relatively small, polar molecules, and are difficult to extract using traditional silica based C18 sorbents.

**Matrix considerations** The analytes are extracted from a polar matrix.

**Analytical method** HPLC with UV detection.

Column: C18, 25 cm x 4.6 mm x 5 µm

IST 1038 A

Last Revised: 04-Apr-06

Page 1 of 2



Mobile phase: 50:50 (v/v) methanol:water  
Flow rate: 1.4 mL/min  
Detection: UV, 230 or 254 nm

---

## Reagents

---

**General comments** 1. Using this method, the following recoveries of the listed nitroaromatic explosives were obtained:

Analyte	% recovery (absolute)	Matrix
1,3-DNB	97	1L of water spiked with 0.4ppb of the listed explosives
Tetryl	101	
NB	100	
2,4,6-TNT	98	
2-NT	96	
4-NT	94	
3-NT	92	

2. Reference: Liesel von Metz, personal communication, 1995.

3. Previous # IST3012.

---

**ISOLUTE column part numbers represent the product configuration of choice for use with a vacuum sample processing station. For 96-well and alternative column configurations compatible with any SPE automation system, please contact Biotage.**

© 2006 Argonaut Technologies, now Biotage company. All rights reserved. ISOLUTE is a registered trademark of Argonaut Technologies, now a Biotage company.

**United States and Canada**

T: + 1 434 9792319  
Toll-Free: +1 800 446 4752  
ordermailbox@biotage.com

**Sweden**

Biotage  
T: + 46 18 56 59 00  
order@eu.biotage.com

**United Kingdom, EIRE**

Biotage  
T: + 44 1443 811811  
eurosales@eu.biotage.com

**Japan**

Biotage  
T: + 81 422 281233  
order@biotage.co.jp

