ENVIRONMENTAL

# Automated Solid Phase Extraction of Endocrine Disruptors in Water

## Introduction

Endocrine disruptors need to be checked in drinking water at trace levels because of the effect they can have on hormones if allowed to reach high concentrations. SPE provides a quick and simple means of concentrating the components using controlled flow rates and volumes that will consistently produce good recoveries.

## Instrumentation Used for Sample Preparation

AUTOTRACE FOR AUTOMATED SPE AND THE TURBOVAP LV FOR EVAPORATION

## Sample Preparation

A 500ml sample of water is taken for the analysis of the following compounds.

- The solvent MTBE (Methylterbutylethylene ) is used as an Eluent.
- **Screen for Octylphenol, Nonylphenol, Octachlorostyrene, Butylbenzylphthalate, Diazinon, BHA & BHT.**
- The Eluent can be dried using an in line anhydrous sodium sulphate cartridge.

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## AutoTrace Method

All solvent lines are purged & primed with solvent first. A maximum of 5 solvents can be used to run a wide range of methods. Independent lines separate the aqueous and organic waste solvents. The instrument sample rack has 6 positions that can take volumes from 10 ml to 2000 ml and 6 sample collection positions for the Eluent. This method offers an automated rugged and reproducible solution for cleaning up the samples to concentrate & remove interferences.

## AutoTrace Method

| No. | Method: Estimated time 1hr : 44 min |
|---|---|
| 1 | Process 6 Samples using the following method steps: |
| 2 | Condition the Column with 5.0 ml of Dichloromechane into solvent waste |
| 3 | Condition Column with 5.0 ml of MTBE into solvent waste |
| 4 | Condition Column with 5.0 ml of Methanol into solvent waste |
| 5 | Condition Column with 5.0 ml of DI Water into aqueous waste |
| 6 | Load 500.0 ml of sample onto Column |
| 7 | Rinse Column with 5.0 ml of DI Water into aqueous waste |
| 8 | Wash Syringe with 5.0 ml of MEOH/MTBE 10:90 |
| 9 | Dry Column with gas for 15.0 minutes |
| 10 | Collect 5.0 ml Fraction into sample tube using MEOH/MTBE 10:90 |
| 11 | Collect 5.0 ml Faction into sample tube using Dichloromethane |
| 12 | Wash Syringe with 5.0 ml of Methanol |
| 13 | End |

## Parameters:

**Flow Rates**

| | |
|---|---|
| Cond Flow: | 15.0 ml/min |
| Load Flow: | 10.0 ml/min |
| Rinse Flow: | 20.0 ml/min |
| Elute Flow: | 5.0 ml/min |
| Cond Air Push: | 15.0 ml/min |
| Rinse Air Push: | 20.0 ml/min |
| Elute Air Push: | 5.0 ml/min |

**SPE Parameters**

| | |
|---|---|
| Push Delay: | 5 sec |
| Air Factor: | 1.0 |
| Autowash Vol.: | 1.00 ml |

**Workstation Parameters**

| | |
|---|---|
| Max. Elution Vol.: | 12.0 ml |
| Exhaust Fan On: | Yes |
| Beeper On: | Yes |

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