

Automated Solid Phase Extraction (SPE) of Triclosan in River Water

INTRODUCTION

In recent years, there has been some concern about the levels of triclosan found in drinking water. Triclosan is an antibacterial compound used in a wide range of detergents, soaps, creams, and kitchen sprays. Such widespread use of triclosan requires the need to screen drinking water for the presence of this compound.

INSTRUMENTATION USED FOR SAMPLE PREPARATION

Dionex AutoTrace® instrument

SAMPLE PREPARATION

- A 500 mL sample of river water is taken for the analysis and mixed with 325 mL of methanol to prevent the triclosan sticking to the glass bottle.
- The solvent dichloromethane is used as an eluent. Collection is done in 14 mL vial.
- A standard C18 silica column, 3 mL, 1 g, can be used for the analysis but an HLB or end-capped C18 phase can also be used.

AUTOTRACE METHOD AND CONCLUSION

All solvent lines are purged and primed with solvent first. A maximum of five 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 six positions that can take volumes from 10 mL to 2000 mL and six sample collection positions

for the eluent. This method offers an automated rugged and reproducible solution for cleaning up the samples to concentrate and remove interferences.

No.	Method: Estimated time 1h 29 min
1	Process six samples using the following method steps:
2	Wash syringe with 10.0 mL of DCM.
3	Condition column with 10.0 mL of DCM into solvent waste.
4	Wash syringe with 10.0 mL of CH ₃ OH.
5	Condition column with 10.0 mL of CH ₃ OH into solvent waste.
6	Wash syringe with 10.0 mL of acidified water into aqueous waste.
7	Wash syringe with 5.0 mL of CH ₃ OH.
8	Load 825.0 mL of sample into column.
9	Dry column with gas for 30.0 min.
10	Wash syringe with 10.0 mL of CH ₃ OH.
11	Wash syringe with 10.0 mL of DCM.
12	Collect 6.0 mL fraction into sample tube using DCM.
13	Collect 6.0 mL fraction into sample tube using DCM.
14	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

Instrument Parameters

Max. Elution Vol.:	12.0 mL
Exhaust Fan On:	Yes
Beeper On:	Yes

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