

# Automated Solid Phase Extraction (SPE) of Acid Herbicides in Water

## **INTRODUCTION**

Acid herbicides need to be checked in drinking water at trace levels because they are a common class of pesticide found in surface water. The SPE method 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**

Dionex AutoTrace® instrument

## **SAMPLE PREPARATION**

- A 500 mL sample of water is taken for the analysis. The solvent ethyl acetate is used as an eluent.
- Screen for aromatic, phthalic, phenoxypropionic, picolinic, and quinolinecarboxylic acid herbicides.
- A 3 mL SPE cartridge packed with 200 mg of Waters Oasis HLB or a 60 mg Strata-X from Phenomenex can be used.
- The eluent can be dried using an in-line anhydrous sodium sulphate cartridge.

## **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

<b>No.</b>	<b>Method: Estimated time 1h 29 min</b>
1	Process six samples using the following method steps:
2	Condition the column with 5.0 mL of CH <sub>3</sub> OH into solvent waste.
3	Condition column with 5.0 mL of H <sub>2</sub> O/pH2 into aqueous waste.
4	Load 500.0 mL of sample into column.
5	Rinse column with 5.0 mL of ethyl acetate.
6	Wash syringe with gas for 15.0 min.
7	Dry column with gas for 15.0 min.
8	Collect 3.0 mL fraction into sample tube using ethyl acetate.
9	Wash syringe with 5.0 mL of CH <sub>3</sub> OH.
10	End

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## 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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