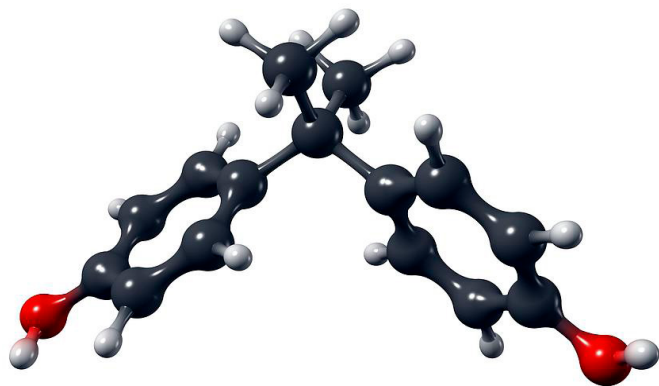


Bisphenol A Analysis In Water by GC/MS Using an Enviro-Clean® 200 mg C18 Extraction Cartridge



UCT Part Numbers

EEC1812Z

Enviro-Clean C18 - Endcapped -
PTFE Frits 200 mg 10 mL

Procedure

1. Prepare Sample

- Using 100 mL of sample water, adjust the pH to 7 or less using 100 mM acetic acid
- Add internal standard to water sample

Note: Bisphenol A has a pKa value of approximately 9.5

2. Condition Enviro-Clean® Extraction Cartridge

- Place a cartridge(s) on a multistation vacuum manifold or automated extraction system.
- Condition the cartridge by adding 3 mL of methanol.
- Partially draw the methanol through until the surface of the liquid reaches the top of the cartridge frit.
- Wait 1 minute then add 3 mL of DI water to the cartridge.
- Add 1 mL of 100 mM acetic acid.
- Draw liquid through until it touches the top of the frit.
- Cartridge is now ready for sample extraction.

Note: Do not allow the sorbent to completely dry out after the addition of methanol, otherwise repeat procedure.

3. Apply Sample

- Add sample to cartridge at a rate of approximately 5 mL/minute by adjusting vacuum.

4. Wash Cartridge

- Wash by drawing through 5 mL of deionized water.
- Dry sorbent (5 minutes at > 10 inches Hg).

5. Elute

- Insert a collection vial in the vacuum manifold.
- Rinse sample bottle with 3 mL of methanol.
- Add the methanol to the cartridge.
- Elute at 5 mL per minute.
- Add 3 mL of methanol to the cartridge.
- Elute at 5 mL per minute.

6. Evaporate

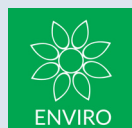
- Evaporate methanol eluate using gentle N₂ (< 40°C) to dryness.
- Add 50 µL of ethyl acetate to dissolve.
- Add 50 µL of reagent MTBSTFA* or BSTFA** to derivatize. Vortex.
- Heat mixture for 20-30 minutes @ 70 °C.
- Cool. Sample is now ready for GC injection.

*MTBSTFA-- N-(t-butyldimethylsilyl)-N-methyltrifluoroacetamide

**BSTFA-- N,O -Bis(trimethylsilyl)trifluoroacetamide

7. Instrument Conditions

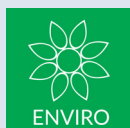
8. Quantitate



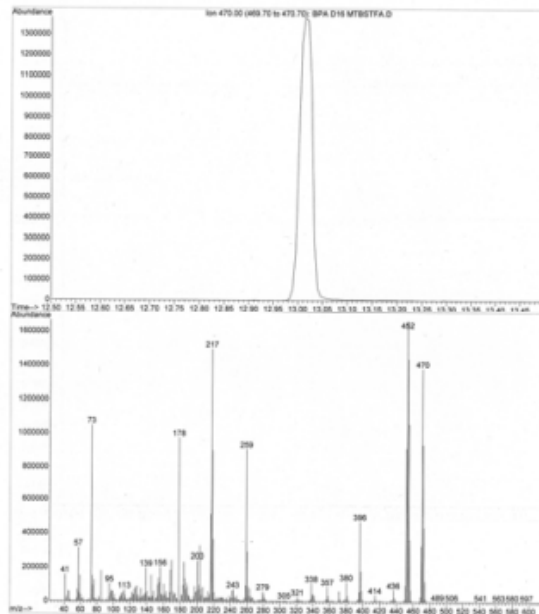
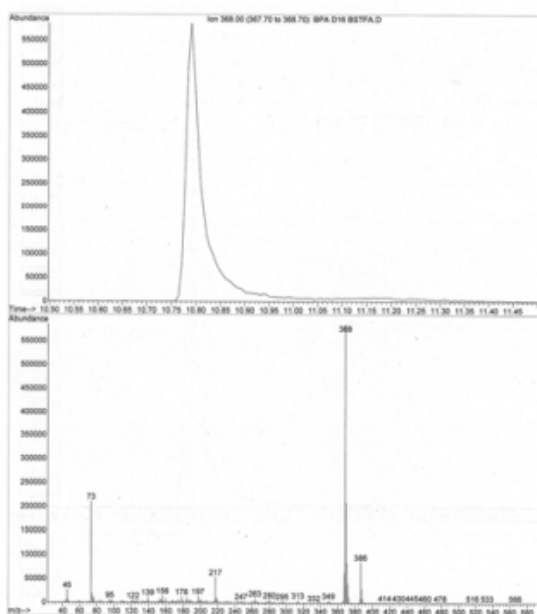
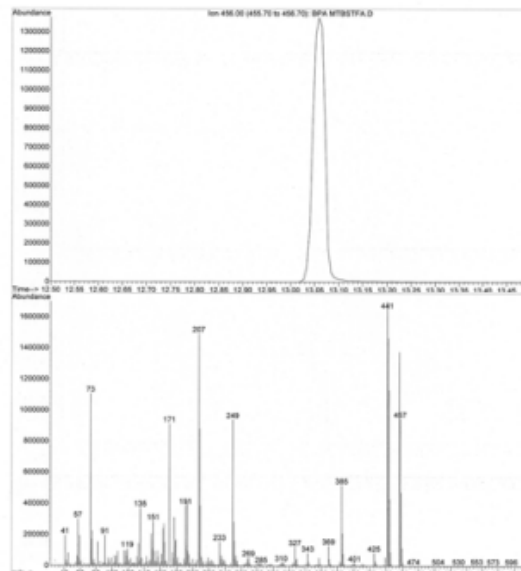
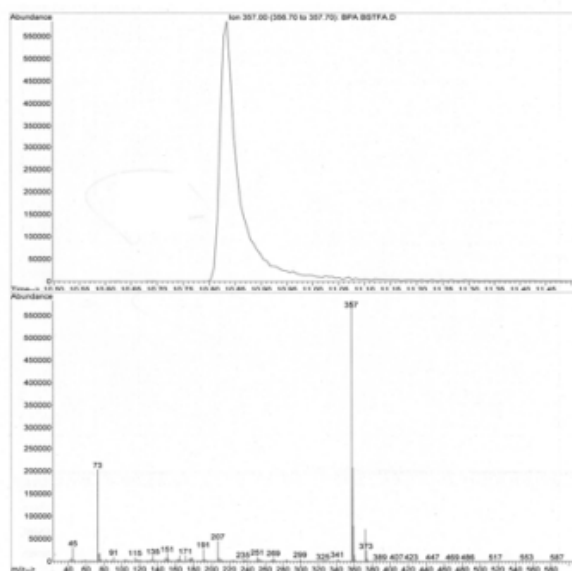
Instrument Conditions	
Column	Rtx-5MS, 30m, 0.25 mm ID, 0.50 µm df (5% diphenyl/95% dimethyl polysiloxane)
Injector Temperature	250°C
Detector Temperature	250°C
Oven Program	Initial 70°C, ramp @ 20°C/minute to 320°C, hold 3.0 min
Purge Flow	Initially Off. On at 0.75 minutes
Split Flow	0.5 mL/ minute
Inject	2 µL

MS in EI (+) mode:

BSTFA	Primary Ion	Secondary Ion	Tertiary Ion
BPA	357	373	207
BPA-D16	368	386	217
MTBSTFA	Primary Ion	Secondary Ion	Tertiary Ion
BPA	441	457	207
BPA-D16	452	470	217



Chromatogram Showing Retention Time for bisphenol A in Water



Spike Concentration: 0.15 µg/L

Calc Concentration: 0.157 µg/L

Recovery: 105%

DCN-905020-132

UCT, LLC • 2731 Bartram Road • Bristol, PA 19007 800.385.3153 • 215.781.9255

www.unitedchem.com Email: methods@unitedchem.com

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