

Acidic Herbicides in Drinking Water by GC-MS

Waters Corporation

This is an Application Brief and does not contain a detailed Experimental section.

Abstract

This application brief demonstrates analysis of acidic herbicides in drinking water by GC-MS.

Experimental

GC-MS Method

Column:	RTX-5 capillary, 30 meters, 0.32 mm ID, 0.25 µm film thickness
Carrier gas:	Helium @ 20 cm/sec
Temp. program:	50 °C 1 min initial hold, 25 °C/min to 100 °C, then 10 °C/min to 290 °C

Injection volume: 2 μ L

Detection: FID

OASIS® MAX SPE METHOD FOR ACIDIC HERBICIDES

Conditions for Oasis® MAX Cartridge, 6 cc, 150 mg
Part Number 186000369

Sample is first hydrolyzed at pH 12 for 60 min. Then, pH is adjusted to approx. neutral with HCl before SPE.

PREPARE SAMPLE

CONDITION:

3 mL methanol/ 3 mL water

LOAD:

250 mL sample

WASH #1:

3 mL 50 mM NaOAc (pH 7.5)

WASH #2 (methanol) will contain bases and neutrals retained by reversed-phase interaction. This fraction may be analyzed for those compounds if desired.

WASH #2:

4 mL methanol

ELUTE:

4 mL MeOH/MTBE/TFA 89:10:1

Analytes with $pK_a < 3$ require strong acid (i.e. trifluoroacetic) at this step.

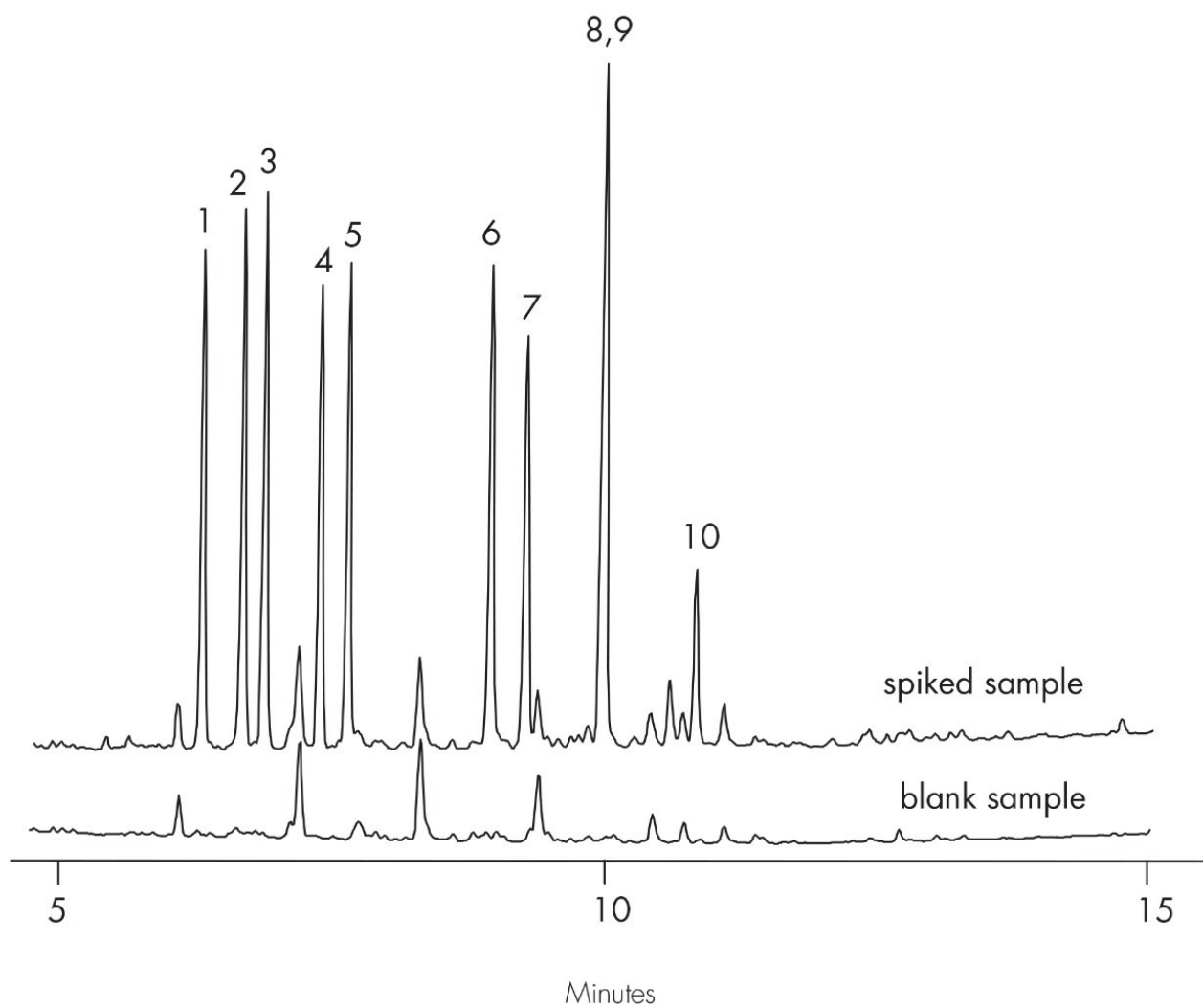
EVAPORATE:

derivatize (diazomethane in MTBE)
adjust final volume to 0.5 mL

Results and Discussion

Compound	% Recovery
1. dicamba	>90%
2. MCPP	>90%
3. MCPA	>90%
4. dichloroprop	>90%
5. 2,4-D	>90%
6. 2,4,5-T	>90%
7. 2,4,5-TP	>90%
8. 2,4-DB	>90%
9. dinoseb	>90%
10. picloram	~60%

40 µg/L spike level



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