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应用纪要

ACQUITY UPLC HILIC Gradient Separation of Organophosphonic Acids

Waters Corporation

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

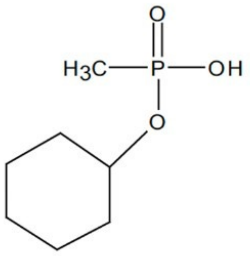
Abstract

This application highlights the gradient separation of organophosphonic acids.

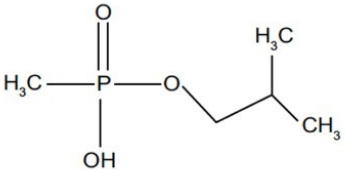
Introduction

The compounds used in this study are:

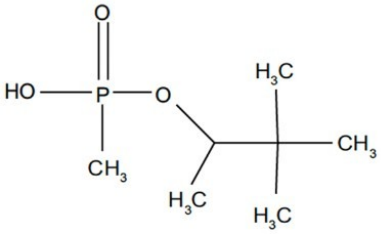
1. Pinacolyl methylphosphonic acid (PMPA)
2. 2-(methyl)propyl methylphosphonic acid (MMPA)
3. Cyclohexyl methylphosphonic acid (CMPA)
4. Isopropyl methylphosphonic acid (IMPA)
5. Ethyl methylphosphonic acid (EMPA)



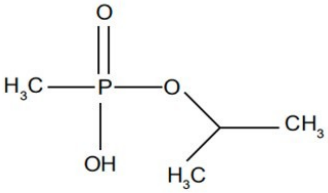
Cyclohexyl methylphosphonic acid (CMPA)



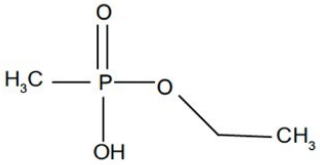
2-(methyl)propyl methylphosphonic acid (MMPA)



Pinacolyl methylphosphonic acid (PMPA)



Isopropyl methylphosphonic acid (IMPA)



Ethyl methylphosphonic acid (EMPA)

Experimental

Chromatographic Conditions

Columns:	ACQUITY UPLC BEH Amide, 2.1 x 100 mm, 1.7 µm
Part Number:	186004801
Mobile Phase A:	50/50 MeCN/H_2O with 10 mM $CH_3COONH_4$and 0.04% NH_4OH, pH 9.0

Mobile phase B:	95/5 MeCN/H_2O with 10 mM CH_3COONH_4 and 0.04% NH_4OH, pH 9.0
Flow Rate:	0.5 mL/min
Injection Volume:	5.0 µL (PLNO)
Sample Concentration:	2 µg/mL each
Sample Diluent:	75/25 MeCN/MeOH
Column Temperature:	65 °C
Weak Needle Wash:	95/5 MeCN/H_2O
Instrument:	Waters ACQUITY UPLC with ACQUITY SQD

Gradiet

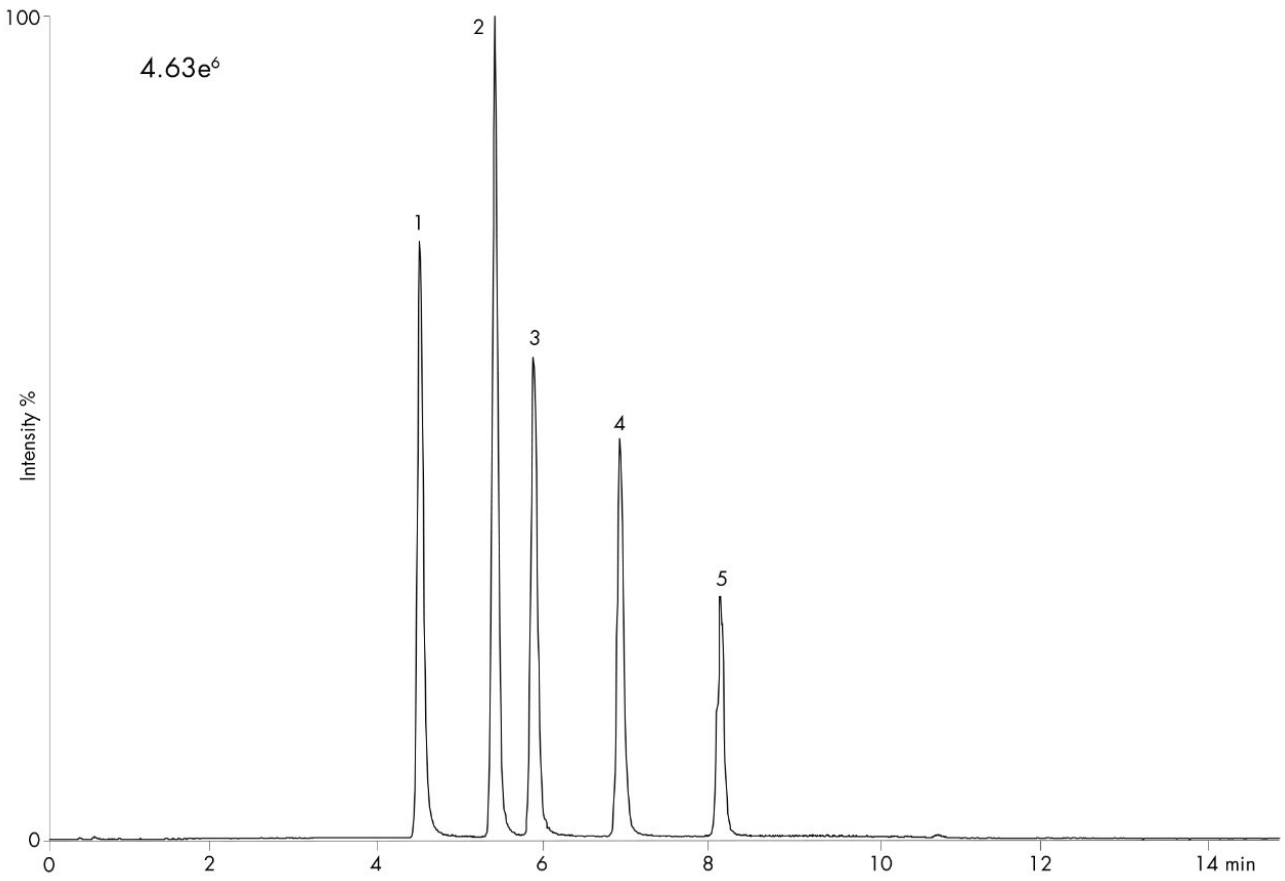
Time (min)	Profile	
	%A	%B
Initial	0.1	99.9
10.00	99.9	90.0
10.01	0.1	99.9
15.00	0.1	99.9

Mass Spectrometer Conditions

Ionization Mode:	ES-

Capillary:	2.5 KV
Cone:	30 V (EMPA, IMPA, PMPA); 40 V (CMPA); 35 V (MMPA)
Source Temperature:	120 °C
Desolvation Temperature:	400 °C
Desolvation Gas Flow:	800 L/Hr
Cone:	5 L/Hr
SIR *m/z:*	122.9 (EMPA); 136.95 (IMPA); 179.0 (PMPA); 177.0 (CMPA); 150.95 (MMPA)
Dwell Time:	0.1 s

Results and Discussion



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