

IC Application Note No. M-1

Title: Aliphatic monocarboxylic acids in produced water using IC/MS coupling

Summary: Determination of acetic, propionic, butyric, valeric and caproic acid in produced water using anion chromatography with conductivity and MS detection after post-column addition of ammonia for MS detection and inline sample preparation by dialysis.

Sample: Produced water containing crude oil

Sample Preparation: Dilution 1 : 10 in ultrapure water , inline dialysis

Column: 6.1005.210 Metrosep Organic Acids – 100

Eluent: 0.25 mmol/L oxalic acid

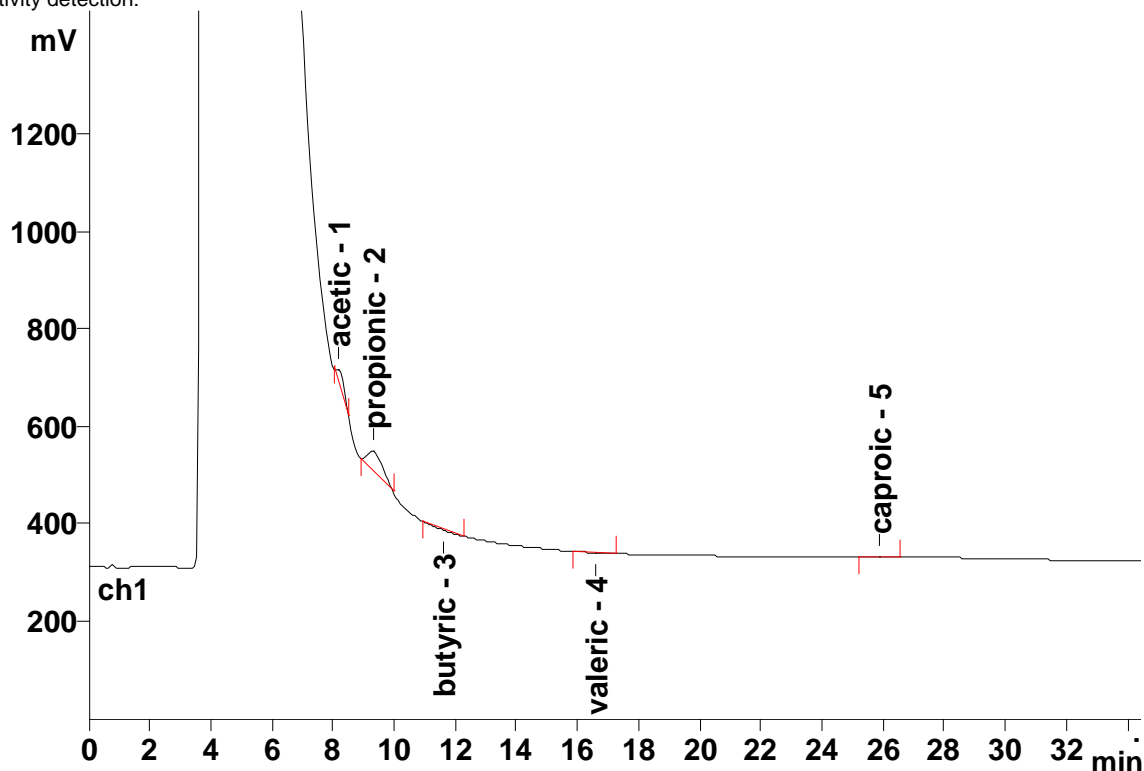
Suppressor: Metrohm Suppressor Module (MSM, 50 mmol/L sulfuric acid)

PCA: 300 mmol/L ammonia (0.25 mL/min)

Flow: 1.0 mL/min

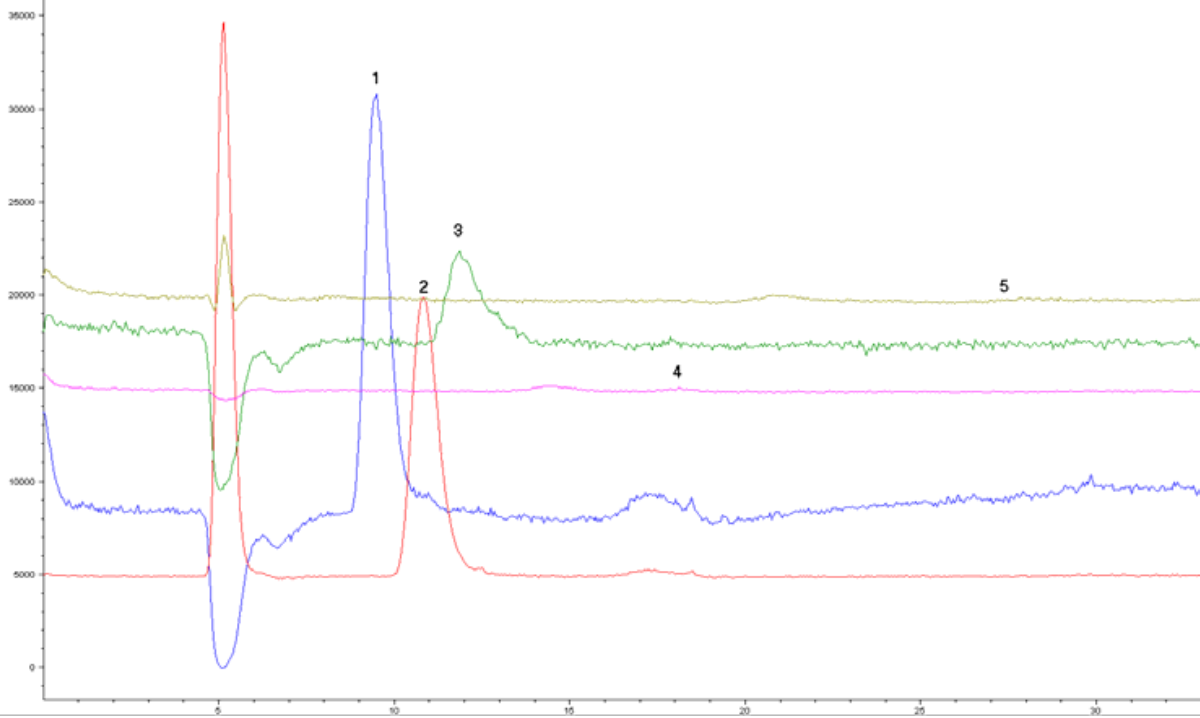
Injection Volume: 10 μ L

Conductivity detection:



MS detection

■ "MSD1 59, EIC=58.759.7 (D:\VCMSSD\DATA\050512\5ABUREN000005.D) AP+ES, Neg. SIM, Frag. 70, *SIM frag"
■ "MSD1 73, EIC=72.723.7 (D:\VCMSSD\DATA\050512\5ABUREN000005.D) AP+ES, Neg. SIM, Frag. 70, *SIM frag"
■ "MSD1 87, EIC=68.787.7 (D:\VCMSSD\DATA\050512\5ABUREN000005.D) AP+ES, Neg. SIM, Frag. 70, *SIM frag"
■ "MSD1 951, EIC=100.7101.7 (D:\VCMSSD\DATA\050512\5ABUREN000005.D) AP+ES, Neg. SIM, Frag. 70, *SIM frag"
■ "MSD1 115, EIC=114.7115.7 (D:\VCMSSD\DATA\050512\5ABUREN000005.D) AP+ES, Neg. SIM, Frag. 70, *SIM frag"



Results:	Acetic acid (1) mg/L	Propionic acid (2) mg/L	Butyric acid (3) mg/L	Valeric acid (4) mg/L	Caproic acid (5) mg/L
	428.4	9.3	2.6	0.001	0.007