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Ion Chromatography Comparison of Vials

Report #: MSC111219

Report Date: 11/12/2019

Report Prepared For:
Microsolv Corporation

Introduction:

PP vials were compared by ion chromatography.

Experimental:

The following samples were tested:

1. Microsolv, Catalog 9502S-PP-Clear, Lot 1019-280-19
2. Test Vials

Samples were tested with fluoride, bromide, and chloride solutions and analyzed by ion chromatography on a Dionex ICS-2100 instrument.

Ion Chromatography Conditions

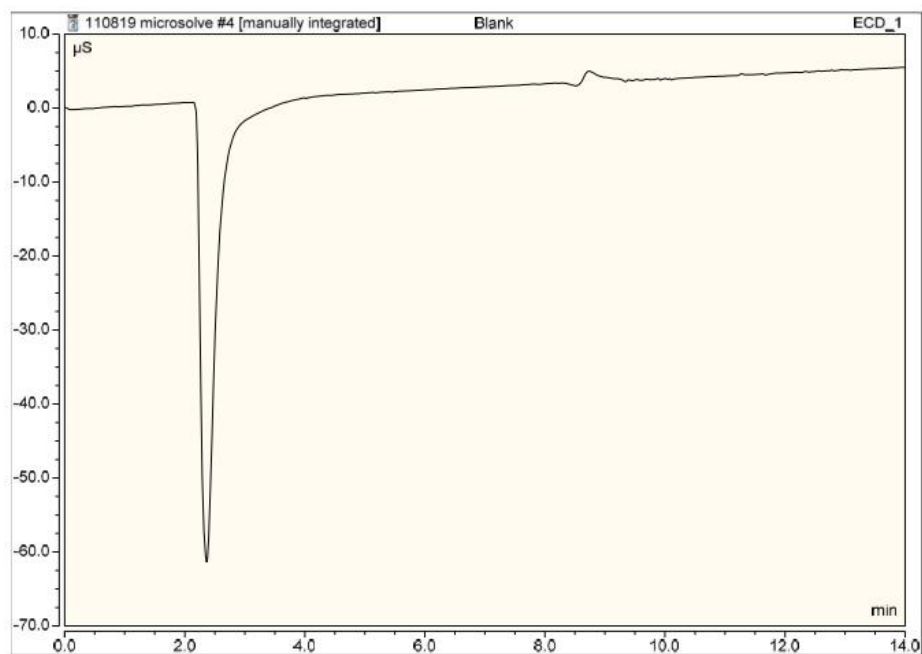
Column	Dionex IonPac AS22 Analytical, 4x250mm (P/N 064141, S/N 170419134, Lot 01619130), Dionex IonPac AG22 Guard, 4x50mm (P/N 064139, S/N 170517076, LOT/N 01619036)
Eluent	4.5mM Sodium Carbonate/1.4mM Sodium Bicarbonate
Injection Volume:	25 uL
Flow Rate:	1.2ml/min
Detection	Suppressor conductivity, Dionex AERS 500, anion electrolytically regenerated suppressor, 2mm, 082541, recycle mode, 31mA

Results:

Vial	Sample	Fluoride	Chloride	Bromide
9502S-PP	Blank	0	0	0
Test Vial	Blank	0	0	0
9502S-PP	Fluoride, 1000 ppm	81.268	0	0
Test Vial	Fluoride, 1000 ppm	83.744	0	0
9502S-PP	Chloride, 1000 ppm	0	7.086	0
Test Vial	Chloride, 1000 ppm	0	6.899	0
9502S-PP	Bromide, 1000 ppm	0	0	5.160
Test Vial	Bromide, 1000 ppm	0	0	5.714
9502S-PP	Mixed Fluoride, Chloride, Bromide – 1	43.283	2.259	1.464
Test Vial	Mixed Fluoride, Chloride, Bromide – 1	40.441	2.068	1.556
9502S-PP	Mixed Fluoride, Chloride, Bromide – 2	41.726	1.940	1.567
Test Vial	Mixed Fluoride, Chloride, Bromide - 2	41.936	1.860	1.634

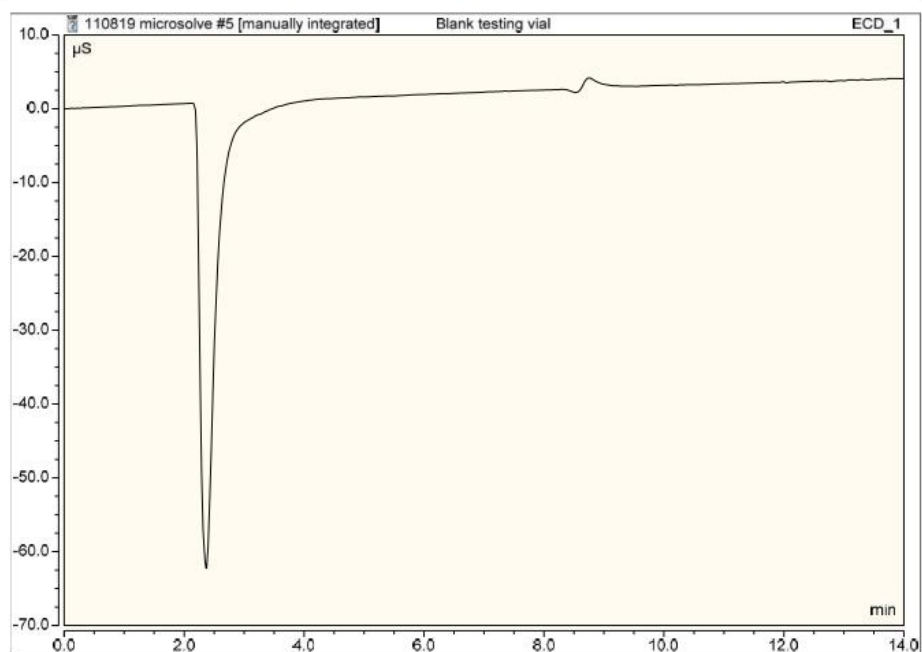
There were no substantial differences between test results between the current 9502S-PP vials and the Test vials. No ions were detected in the blank of either vial.

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount n.a.
TOTAL:				0.00	0.00	0.00



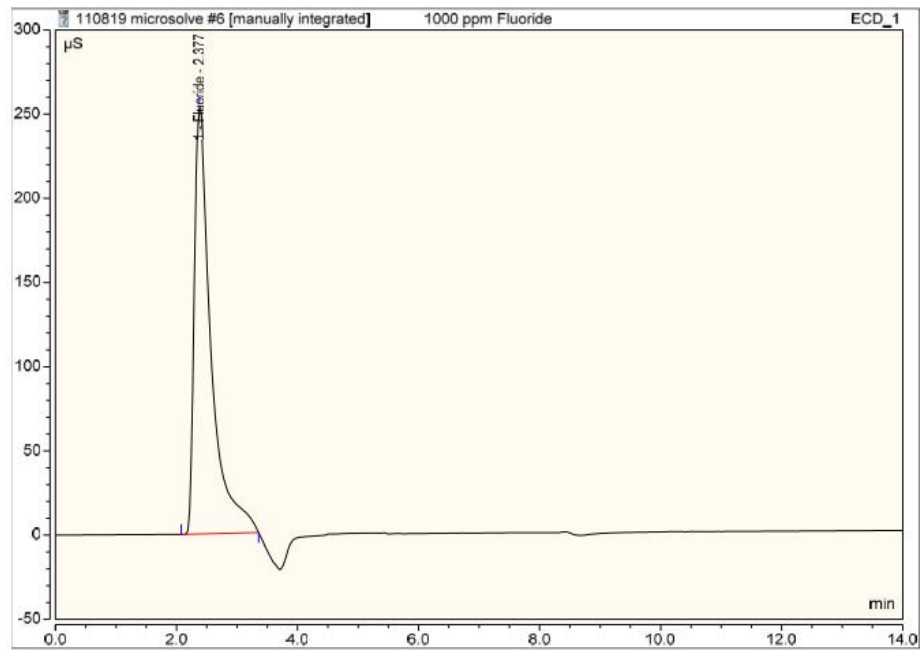
Blank (9502S-PP)

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount n.a.
TOTAL:				0.00	0.00	0.00



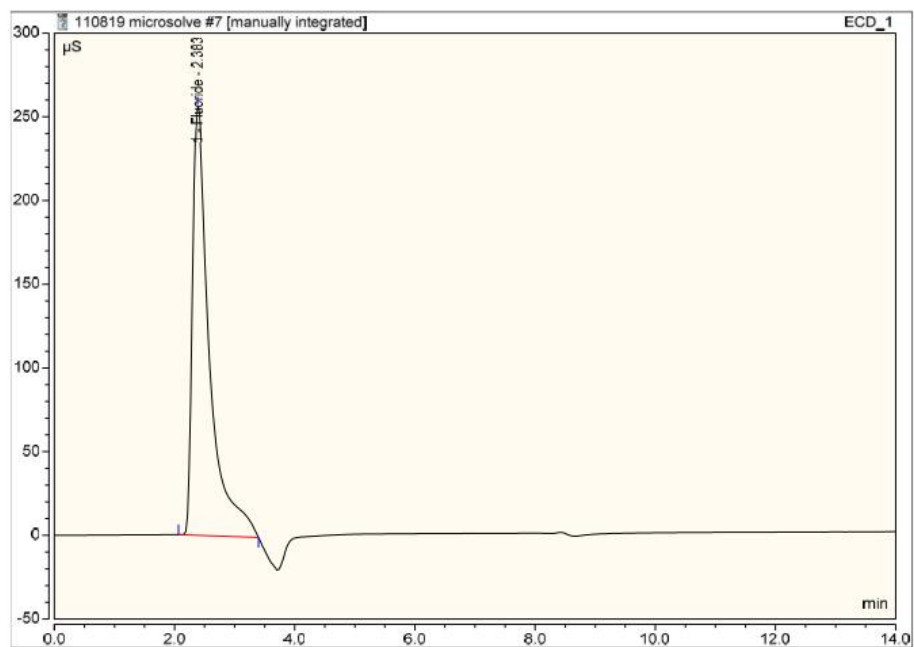
Blank (Testing Vial)

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	2.38	Fluoride	BMB*	81.268	253.554	n.a.
TOTAL:				81.27	253.55	0.00



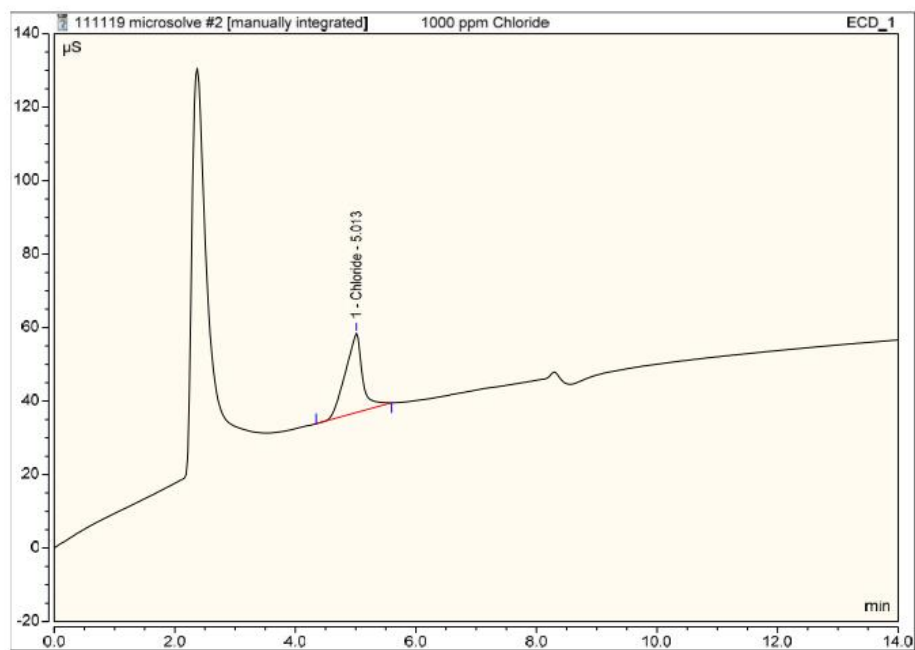
Fluoride, 1000 ppm (9502S-PP)

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	2.38	Fluoride	BMB*	83.744	255.684	n.a.
TOTAL:				83.74	255.68	0.00



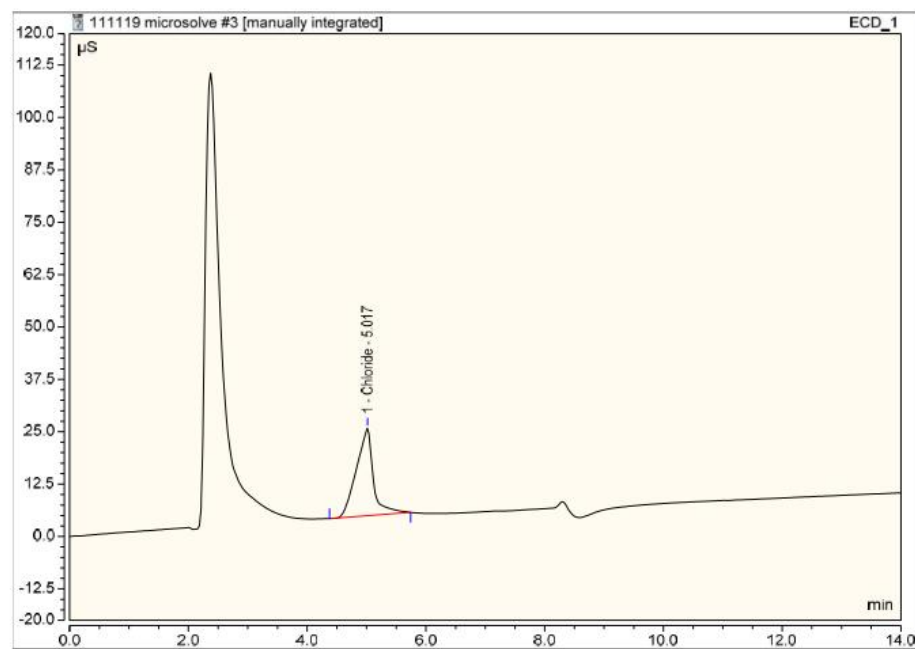
Fluoride, 1000 ppm (Test Vial)

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	5.01	Chloride	BMB*	7.086	21.587	n.a.
TOTAL:				7.09	21.59	0.00



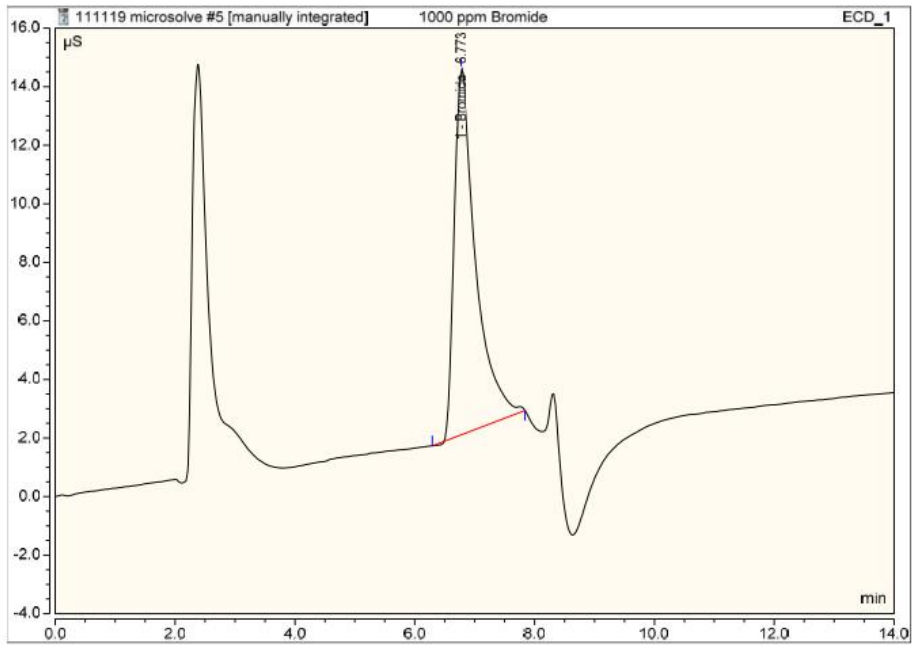
Chloride, 1000 ppm (9502S-PP)

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	5.02	Chloride	BMB*	6.899	20.912	n.a.
TOTAL:				6.90	20.91	0.00



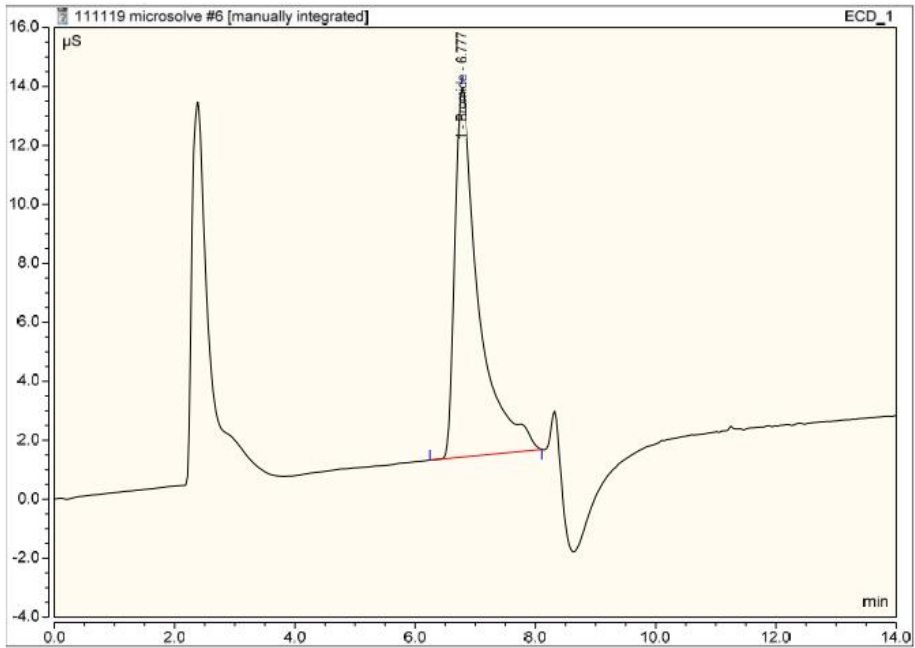
Chloride, 1000 ppm (Test Vial)

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	6.77	Bromide	BMB*	5.160	12.501	n.a.
TOTAL:				5.16	12.50	0.00



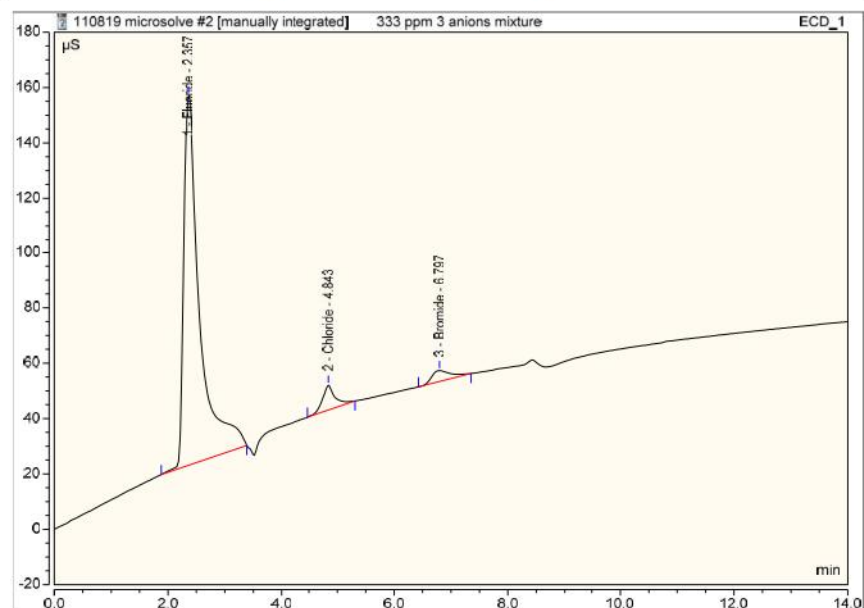
Bromide, 1000 ppm (9502S-PP)

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	6.78	Bromide	BMB*	5.714	12.557	n.a.
TOTAL:				5.71	12.56	0.00



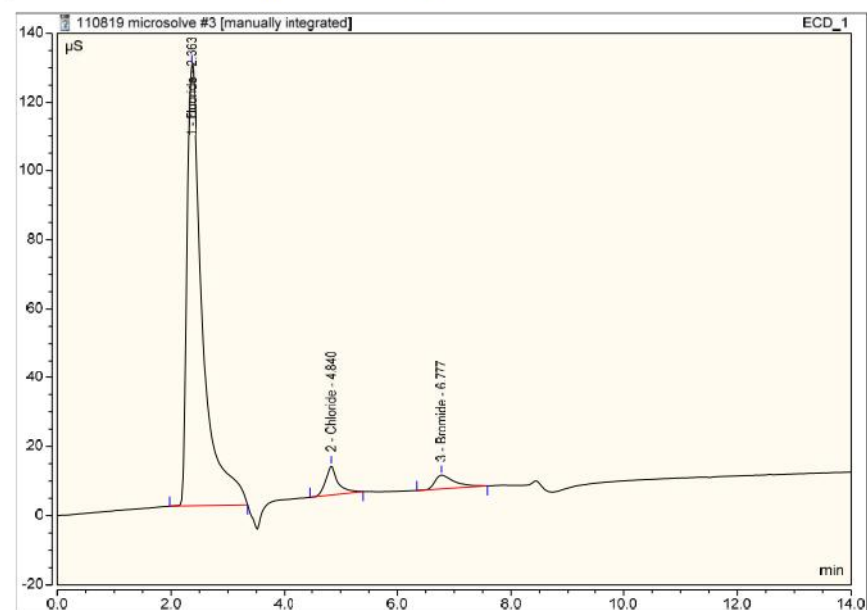
Bromide, 1000 ppm (Test Vial)

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	2.36	Fluoride	BMB*	43.283	133.868	n.a.
2	4.84	Chloride	BMB*	2.259	9.034	n.a.
3	6.80	Bromide	BMB*	1.464	3.950	n.a.
TOTAL:				47.01	146.85	0.00



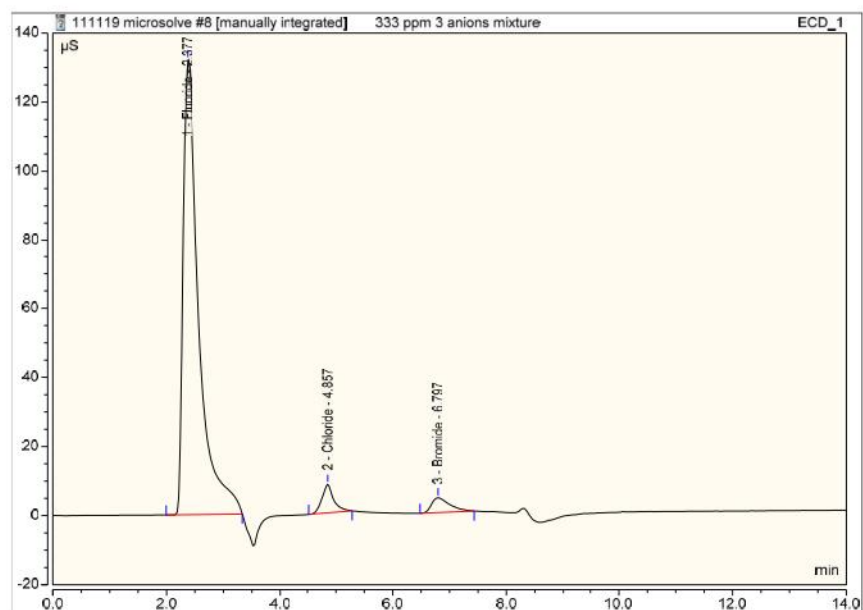
Mixed Anions (9502S-PP) – 1

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	2.36	Fluoride	BMB*	40.441	128.125	n.a.
2	4.84	Chloride	BMB*	2.068	8.426	n.a.
3	6.78	Bromide	BMB*	1.556	3.940	n.a.
TOTAL:				44.07	140.49	0.00



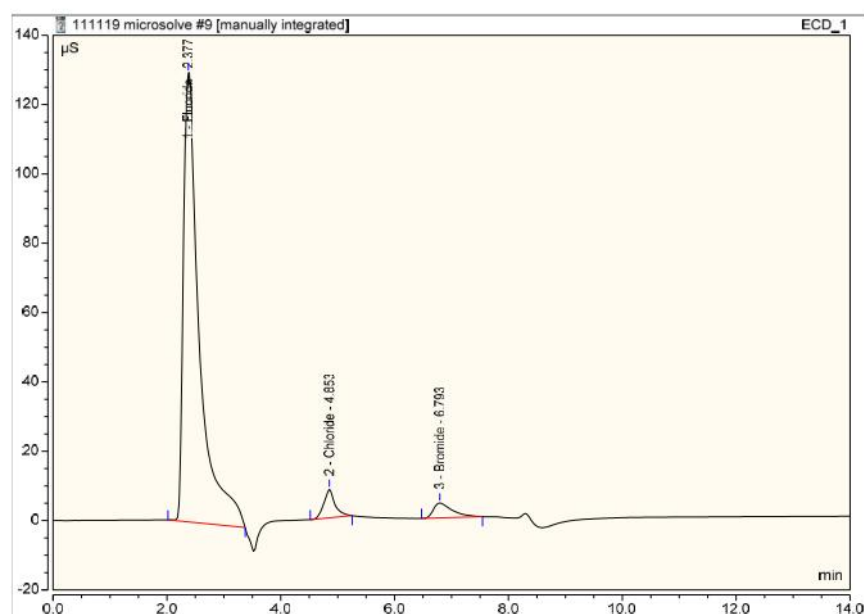
Mixed Anions, (Test Vial) – 1

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	2.38	Fluoride	BMB*	41.726	131.998	n.a.
2	4.86	Chloride	BMB*	1.940	8.304	n.a.
3	6.80	Bromide	BMB*	1.567	4.251	n.a.
TOTAL:				45.23	144.55	0.00



Mixed Anions (9502S-PP) - 2

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount
1	2.38	Fluoride	BMB*	41.936	129.495	n.a.
2	4.85	Chloride	BMB*	1.860	8.231	n.a.
3	6.79	Bromide	BMB*	1.634	4.278	n.a.
TOTAL:				45.43	142.00	0.00



Mixed Anions, (Test Vial) – 2