

After the curves were calibrated successfully, a precision and accuracy study was performed for the dual system over the following three days. The study was done in order to replicate the process as in an environmental laboratory. Thus, a verification of a BFB tune passing tune parameters was performed. Next, two CCVs were run at a 50ppb concentration and the CCC compounds passed within the +/- 20% window. Note: Two CCVs were run in order to determine the reproducibility of the CCV results. Then, a blank was run in order to display the cleanliness of the system. Finally, 10 precision and accuracy samples prepared at a concentration of 20ppb were run on both concentrators. This process was repeated for three days and the results are presented in Figures 1, 2, 3 and 4 and Tables 4, 5 and 6.

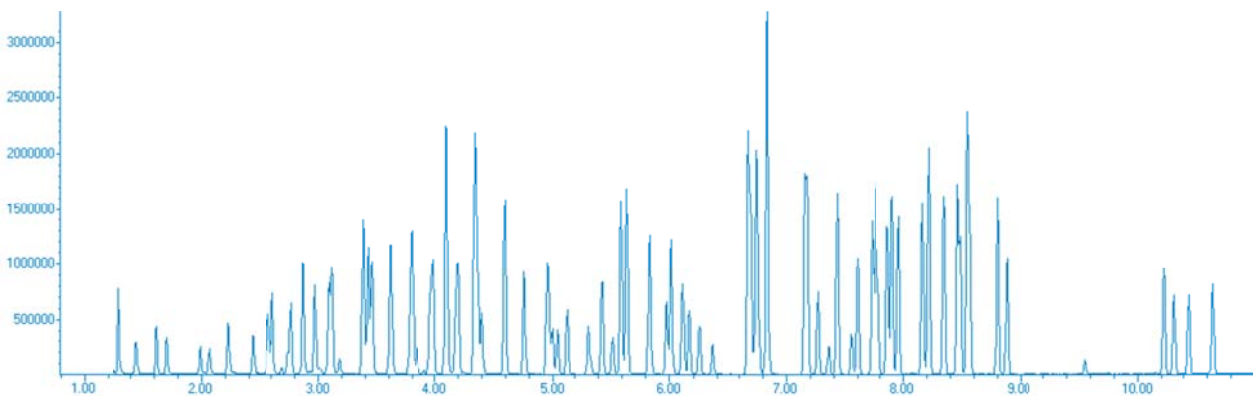


Figure 1: 20ppb Chromatogram on Concentrator 1

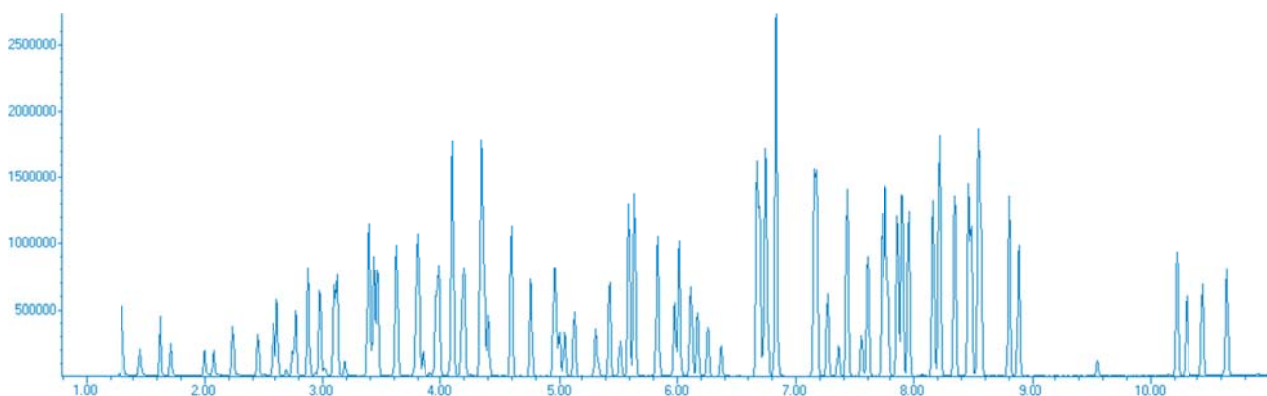


Figure 2: 20ppb Chromatogram on Concentrator 2



Compound	Concentrator 1 Day 1		Concentrator 2 Day 1		Concentrator 1 Day 2		Concentrator 2 Day 2		Concentrator 1 Day 3		Concentrator 2 Day 3	
	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y
Dichlorodifluoromethane	2.00	106.35	8.48	103.75	5.25	100.48	4.63	99.00	0.20	101.94	6.31	102.29
Chloromethane	9.57	101.01	4.21	94.53	3.68	96.19	6.16	101.30	8.60	106.98	1.51	110.47
Vinyl Chloride	6.94	104.15	5.47	99.46	3.77	102.94	6.27	103.47	4.40	109.31	3.80	112.47
Bromomethane	7.88	97.29	5.75	90.41	1.97	90.57	5.42	93.13	6.97	95.58	1.87	106.63
Chloroethane	9.29	98.79	3.76	96.97	3.32	101.55	5.42	99.34	5.48	109.95	0.75	110.03
Trichlorofluoromethane	5.09	112.24	5.82	106.06	4.12	112.88	6.04	112.92	1.69	117.42	4.11	122.77
diethyl ether	9.44	94.85	5.53	93.61	4.76	104.33	3.54	102.45	4.80	110.63	0.88	109.89
1,1,2-trichlorofluoroethane	2.27	112.42	6.82	105.93	3.67	113.89	6.70	114.19	1.16	119.12	4.63	121.57
1,1-Dichloroethene	4.02	106.03	4.17	99.83	5.23	108.83	6.36	106.73	2.78	115.02	2.92	117.43
Acetone	13.54	94.30	11.74	95.64	9.14	104.11	1.85	97.71	0.95	100.23	0.84	97.60
Iodomethane	8.35	102.99	1.09	96.91	6.32	102.46	4.09	104.24	9.92	101.62	1.57	106.67
Carbon Disulfide	4.30	103.12	3.93	97.94	4.97	103.73	6.08	101.98	3.43	110.92	2.64	112.96
allyl chloride	3.67	102.85	3.65	99.30	2.75	105.13	5.26	104.24	4.02	112.84	0.95	115.34
Methylene Chloride	4.86	98.31	1.62	96.88	5.09	102.19	4.72	100.36	4.66	110.43	0.23	111.22
acetonitrile	8.40	95.65	4.29	102.94	3.86	106.36	5.08	109.84	2.74	111.93	2.39	108.57
Tert Butyl Alcohol	9.09	90.66	12.24	90.39	9.69	117.05	3.31	111.40	3.03	107.01	0.05	101.21
MTBE	5.74	98.83	2.97	98.56	3.82	106.94	2.49	104.46	3.26	111.31	1.34	111.54
cis-1,2-Dichloroethene	4.79	103.81	1.89	99.09	4.87	105.49	5.83	104.05	4.03	112.93	1.09	115.12
acrylonitrile	7.39	94.09	3.51	93.69	4.58	102.69	0.78	100.44	0.57	105.88	0.24	104.63
Isopropylether	5.02	99.93	1.08	97.35	4.97	102.79	3.82	102.29	3.77	109.05	0.44	111.55
Vinyl acetate	5.93	108.42	2.67	105.63	1.96	111.00	0.29	114.91	2.92	118.83	2.03	119.57
1,1-Dichloroethane	5.25	102.11	1.75	97.97	5.65	104.93	5.68	103.86	4.97	111.63	0.44	114.62
Ethyl Tert Butyl Ether (ETBE)	5.54	100.39	1.99	96.73	4.32	104.21	3.47	104.75	4.36	110.14	1.58	113.37
trans-1,2-Dichloroethene	4.67	98.51	2.07	96.39	4.62	103.05	5.58	100.28	4.92	110.07	0.05	110.75
ethyl acetate	8.23	93.27	6.30	92.93	1.02	99.43	1.11	99.22	1.59	102.57	1.33	102.58
2-Butanone	8.06	95.87	4.55	95.00	3.20	104.11	0.73	104.30	0.19	106.92	0.71	108.05
2,2-Dichloropropane	12.80	105.87	17.90	104.01	7.84	113.69	5.43	121.39	3.31	129.59	2.35	130.55
Bromochloromethane	4.25	96.28	1.59	96.86	3.96	101.99	4.64	99.29	3.87	110.31	1.59	108.47
propionitrile	9.28	96.60	3.46	95.70	5.52	105.40	0.71	105.29	0.84	107.16	0.34	107.43
methacrylonitrile	6.71	95.19	4.51	92.25	3.53	100.29	0.67	102.22	0.04	102.22	0.58	105.79
THF	7.58	88.57	4.92	93.45	4.84	102.90	1.62	96.08	0.27	104.44	1.25	99.52
Chloroform	5.08	95.98	1.72	94.07	5.07	100.67	4.58	97.74	5.43	107.79	0.36	107.57
methyl acrylate	7.30	97.85	3.60	96.43	3.61	105.12	0.04	106.06	0.12	108.05	0.39	109.79
Dibromofluoromethane SUR	4.71	97.20	1.85	92.57	3.80	99.16	5.15	98.93	5.17	106.76	0.12	109.57
1,1,1-Trichloroethane	4.73	107.31	3.40	100.56	4.47	108.35	6.03	109.18	2.55	114.27	1.50	119.86
2-Chloroethylvinylether	5.61	99.09	2.84	99.43	4.77	108.77	1.25	104.77	2.01	111.46	1.61	108.59
Carbon Tetrachloride	3.97	112.23	5.27	105.25	4.50	112.49	6.87	114.04	3.35	117.45	1.75	121.79
1,1-Dichloropropene	4.38	105.41	3.14	100.49	4.95	109.34	7.17	108.02	3.33	114.68	1.21	116.29
methyl acetate	6.03	97.39	3.72	95.43	3.35	103.73	0.68	103.85	2.49	108.48	0.72	109.71
isobutyl alcohol	15.28	99.35	13.04	88.69	6.14	106.50	2.66	114.48	0.07	107.80	4.33	114.88
Tert Amyl Methyl Ether (TAME)	5.38	99.32	2.68	96.68	3.81	105.25	3.27	105.68	4.40	111.42	0.85	112.56
Benzene	5.33	100.80	1.36	96.78	5.08	103.24	5.87	102.56	4.77	110.66	0.91	113.84
1,2-Dichloroethane	5.19	99.25	1.93	97.87	3.87	104.41	3.36	102.96	4.61	110.22	1.28	111.75
propyl acetate	6.02	99.19	4.96	101.33	1.61	108.23	1.76	109.26	0.59	107.84	1.06	107.38
Trichloroethene	4.47	102.63	1.86	99.38	6.60	109.79	4.65	107.94	3.65	108.38	1.39	111.33
1,4-Dioxane	13.01	94.94	2.49	108.28	4.48	122.79	11.59	109.91	11.72	112.66	4.69	92.60
1,2-Dichloropropane	4.36	103.99	1.02	100.43	3.04	105.61	3.79	108.60	4.18	109.46	0.06	112.65
methyl methacrylate	6.05	105.39	3.74	102.71	3.43	111.82	0.05	115.58	1.26	109.93	1.31	114.54
Dibromomethane	4.53	101.81	2.18	99.79	2.18	107.21	2.14	110.04	4.00	108.31	0.75	110.81



Compound	Concentrator 1 Day 1		Concentrator 2 Day 1		Concentrator 1 Day 2		Concentrator 2 Day 2		Concentrator 1 Day 3		Concentrator 2 Day 3	
	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y	50ppb %RSD	50ppb %Rec'y
Bromodichloromethane	4.82	106.66	2.08	105.42	2.78	110.15	3.21	111.04	5.11	113.58	0.61	114.01
2-chloroethanol	6.16	95.36	3.31	95.85	3.37	103.01	0.10	101.30	0.73	101.32	1.61	98.71
2-nitropropane	3.24	100.07	2.55	106.72	5.82	112.23	3.27	110.43	1.96	109.08	0.71	104.90
cis-1,3-Dichloropropene	4.4	105.24	3.08	102.77	0.93	108.99	3.29	113.58	4.54	113.91	0.87	116.82
4-methyl-2-pentanone	9.97	97.69	6.14	97.99	3.66	107.77	1.58	109.98	0.09	105.38	0.22	106.73
Toluene-d8 SUR	7.25	102.95	1.23	100.14	3.31	106.32	4.21	109.36	4.51	109.73	0.32	114.13
Toluene	6.47	98.43	0.59	94.13	3.68	99.07	4.32	103.95	4.23	102.96	0.48	107.86
ethyl methacrylate	8.82	102.44	3.82	104.57	0.46	110.69	0.18	114.35	1.98	113.00	0.66	112.82
trans-1,3-Dichloropropene	5.27	103.19	3.04	104.58	1.22	111.17	2.37	113.61	4.10	115.04	1.00	115.82
1,1,2-Trichloroethane	7.13	100.27	1.93	99.55	3.25	106.72	1.66	107.73	2.39	107.92	0.37	109.43
Tetrachloroethene	10.19	82.39	2.63	80.07	2.33	83.75	9.10	88.10	3.48	83.05	3.13	84.90
1,3-Dichloropropane	7.35	101.03	2.76	100.25	2.64	106.13	0.79	108.34	3.36	107.88	1.33	110.35
isopropyl acetate	9.61	98.68	4.70	101.03	2.09	107.33	0.12	113.04	1.67	109.69	2.53	111.05
butyl acetate	9.78	99.53	4.49	100.10	2.71	105.48	1.16	111.92	0.21	107.99	1.64	111.26
Dibromochloromethane	6.91	107.73	2.68	107.87	1.87	113.23	2.47	117.63	3.15	114.38	1.30	117.26
2-Hexanone	9.17	93.97	5.80	98.05	2.80	108.79	2.16	107.73	2.12	105.76	0.65	105.18
1,2-Dibromoethane	7.21	101.08	3.42	101.31	2.03	108.05	1.02	110.65	2.92	109.97	0.39	112.22
Chlorobenzene	5.18	96.61	1.38	94.56	1.19	97.27	5.17	97.88	4.56	99.18	0.70	102.13
1,1,1,2-Tetrachloroethane	4.15	103.51	3.16	101.55	0.96	104.50	4.92	104.86	4.37	106.16	0.94	108.72
Ethylbenzene	4.69	100.61	1.64	97.91	1.78	101.08	5.45	101.17	3.79	103.13	0.01	105.77
Xylene (m+p)	5.01	102.08	1.74	98.96	1.16	102.69	5.55	102.43	3.89	104.43	0.35	107.42
Styrene	4.68	100.07	1.99	98.38	1.26	101.75	4.76	100.95	4.13	103.43	1.10	104.99
Xylene (o)	4.77	102.12	1.55	97.70	1.33	100.35	5.62	102.76	4.09	102.37	0.55	107.07
n-amyl acetate	7.82	97.71	4.34	97.30	4.26	99.74	0.68	107.49	1.06	102.22	1.63	107.04
Bromoform	4.70	107.18	2.69	104.66	1.21	109.31	2.13	113.50	3.35	108.52	1.98	111.89
Isopropylbenzene	4.56	102.89	1.86	98.71	0.96	102.09	5.98	104.04	3.26	104.16	0.97	108.09
cis-1,4-dichloro-2-butene	2.40	101.69	3.97	103.39	5.18	112.93	1.02	115.40	1.81	114.09	1.70	113.10
BFB SUR	3.53	96.29	0.86	93.09	2.34	94.47	3.24	96.22	4.99	94.98	1.43	98.49
Bromobenzene	3.29	95.13	0.75	94.93	2.35	96.82	1.98	94.72	5.84	98.02	1.35	96.89
1,2,3-Trichloropropane	3.89	97.32	1.37	96.27	1.53	103.19	1.83	104.51	1.97	99.56	1.25	100.48
1,1,2,2-Tetrachloroethane	5.25	94.91	2.27	94.53	2.15	94.57	1.22	97.98	2.09	95.64	1.85	97.14
n-Propylbenzene	3.66	100.59	3.11	95.54	1.62	98.02	4.09	99.72	3.88	98.52	0.42	102.67
trans-1,4-dichloro-2-butene	2.24	95.01	3.24	95.14	5.35	101.51	2.64	103.02	1.57	101.17	0.20	99.28
2-Chlorotoluene	3.66	96.63	1.86	91.99	2.15	94.78	2.63	96.15	5.47	94.93	1.63	98.99
4-Chlorotoluene	3.26	95.77	2.25	92.19	2.13	94.29	2.53	96.36	4.40	94.87	1.98	97.71
1,3,5-Trimethylbenzene	3.21	100.39	2.27	95.16	1.84	97.43	4.01	99.14	4.07	98.18	0.10	102.30
tert-Butylbenzene	2.98	100.91	2.46	94.87	1.77	97.13	3.62	99.90	4.49	97.90	0.15	102.07
sec-Butylbenzene	4.46	101.73	3.81	96.20	0.79	98.54	3.27	100.82	3.63	98.95	0.17	102.92
1,2,4-Trimethylbenzene	3.36	100.82	2.07	95.79	1.60	98.05	3.64	99.21	4.97	99.32	1.16	102.37
nitrobenzene	3.84	99.67	1.92	94.63	8.34	104.22	5.59	99.65	5.13	95.37	0.48	84.91
1,3-Dichlorobenzene	3.53	94.54	0.88	91.69	1.35	93.66	2.36	95.64	4.96	95.16	1.52	97.24
1,4-Dichlorobenzene	4.42	93.47	1.47	91.24	1.37	93.04	2.76	94.22	4.99	94.22	1.35	95.75
Isopropyltoluene	2.97	102.07	3.32	96.85	0.87	99.79	3.62	101.45	3.89	100.99	0.15	104.90
1,2-Dichlorobenzene	3.78	93.70	1.12	93.69	0.99	95.16	1.96	94.41	4.37	95.66	1.64	96.34
n-Butylbenzene	2.96	103.73	3.70	97.53	0.94	100.49	3.72	102.89	4.26	101.88	0.29	106.57
1,2-Dibromo-3-chloropropane	4.29	93.73	3.67	92.06	2.46	103.37	1.28	97.12	2.37	97.47	0.24	94.63
1,2,4-Trichlorobenzene	2.29	96.15	3.14	93.20	1.57	98.37	1.16	98.70	3.99	99.59	1.84	99.49
Naphthalene	4.68	94.53	2.86	95.38	0.18	101.84	1.13	99.75	2.17	98.80	1.46	98.66
Hexachlorobutadiene	2.16	101.25	4.63	97.53	1.29	103.87	5.05	100.89	4.08	106.13	1.26	106.16
1,2,3-Trichlorobenzene	4.13	94.29	0.81	94.07	1.50	98.14	1.96	97.98	4.03	97.82	1.47	99.46

Table 4: CCV Data over Three Days (CCC Compounds Highlighted in Orange)



Compound	Concentrator 1 Day 1		Concentrator 2 Day 1		Concentrator 1 Day 2		Concentrator 2 Day 2		Concentrator 1 Day 3		Concentrator 2 Day 3	
	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y
Dichlorodifluoromethane	5.67	89.27	5.59	93.26	6.50	86.49	7.22	86.31	4.51	82.55	0.13	91.7
Chloromethane	5.09	89.76	3.71	93.36	5.36	92.24	5.70	95.48	5.64	91.15	1.09	103.18
Vinyl Chloride	5.35	94.51	4.51	100.20	5.65	98.01	7.05	102.41	4.57	96.76	1.41	111.15
Bromomethane	6.54	91.45	3.35	96.20	4.11	94.72	4.85	99.63	6.92	87.94	1.33	105.78
Chloroethane	4.15	97.68	4.49	98.95	5.24	102.67	5.94	105.30	5.34	100.79	2.31	114.97
Trichlorofluoromethane	5.2	97.92	5.50	102.91	6.32	104.16	7.00	106.27	4.37	103.60	0.46	116.40
diethyl ether	5.54	95.67	4.76	95.72	2.77	107.18	2.15	108.89	7.04	106.46	0.73	110.92
1,1,2-trichlorofluoroethane	5.84	94.47	5.46	98.91	6.10	102.58	6.42	104.21	4.34	102.81	0.36	115.67
1,1-Dichloroethene	5.07	97.76	5.37	102.43	5.74	104.13	6.75	108.47	4.17	103.61	1.06	117.60
Acetone	7.94	107.70	5.83	104.15	4.70	108.31	3.92	106.93	5.71	110.28	3.11	106.25
Iodomethane	5.65	88.96	5.20	96.35	6.79	98.83	6.78	103.17	6.78	101.01	3.27	110.22
Carbon Disulfide	4.66	94.24	4.36	98.17	5.51	99.05	6.04	104.16	5.28	98.65	1.68	114.38
allyl chloride	4.28	96.79	3.37	100.93	4.24	103.65	4.28	108.85	5.24	103.04	1.78	118.57
Methylene Chloride	2.77	97.89	2.46	100.55	3.12	105.08	3.96	108.86	4.96	104.59	2.12	116.12
acetonitrile	5.86	101.95	6.19	102.36	7.76	108.41	6.56	108.81	3.83	111.83	2.30	108.28
Tert Butyl Alcohol	12.50	100.87	7.19	95.97	4.64	115.85	3.28	105.99	6.65	111.94	3.68	99.74
MTBE	3.15	100.00	3.51	100.22	2.40	108.53	1.49	110.36	6.00	107.45	1.51	111.20
cis-1,2-Dichloroethene	4.70	99.24	4.79	102.50	5.23	105.48	5.60	110.82	4.20	106.01	1.40	118.85
acrylonitrile	3.72	96.48	2.69	97.25	3.26	104.67	1.78	105.79	5.86	104.03	3.91	106.32
Isopropylether	2.30	97.12	3.11	100.91	2.80	104.15	2.75	109.52	6.27	103.16	1.02	114.20
Vinyl acetate	11.11	93.43	8.53	96.40	10.43	95.16	9.12	96.75	9.11	112.89	2.55	118.83
1,1-Dichloroethane	3.83	98.42	3.87	102.79	3.76	105.91	4.83	112.15	5.02	104.46	1.63	119.37
Ethyl Tert Butyl Ether (ETBE)	2.36	97.93	3.11	102.03	2.19	106.45	2.22	111.73	6.11	105.79	1.43	114.87
trans-1,2-Dichloroethene	3.56	97.74	3.10	99.49	3.63	105.55	4.62	109.06	5.57	104.55	1.52	114.58
ethyl acetate	5.97	95.91	4.44	96.50	3.92	105.94	3.36	104.94	9.03	105.63	1.13	108.18
2-Butanone	4.33	98.71	3.11	100.23	2.90	109.35	1.59	111.39	6.39	108.28	2.11	110.83
2,2-Dichloropropane	7.41	91.55	4.19	93.27	4.63	106.36	5.01	109.32	6.12	112.85	0.86	125.70
Bromochloromethane	2.58	98.41	2.71	98.98	3.39	106.68	2.30	109.77	6.77	105.65	0.82	113.78
propionitrile	7.61	99.62	3.88	99.28	3.97	109.56	1.84	109.86	11.11	109.38	2.64	110.35
methacrylonitrile	3.78	95.3	2.94	100.26	2.45	104.33	1.61	109.59	7.15	104.16	2.98	110.08
THF	5.81	98.71	3.20	95.81	3.04	107.72	2.47	104.05	6.60	109.35	1.25	103.38
Chloroform	3.14	96.04	3.30	96.72	3.73	103.06	4.02	105.72	5.37	102.56	1.58	112.62
methyl acrylate	3.71	98.5	3.14	100.93	2.54	106.82	1.33	109.92	6.45	107.79	0.83	110.25
Dibromofluoromethane SUR	3.43	93.74	3.00	98.05	2.72	101.32	3.61	106.87	5.87	101.18	0.62	112.75
1,1,1-Trichloroethane	4.75	98.51	4.89	103.65	4.23	105.44	6.52	110.42	5.09	105.01	2.11	120.08
2-Chloroethylvinylether	3.06	100.50	2.60	100.26	2.17	110.76	1.84	111.11	5.92	109.40	2.02	109.07
Carbon Tetrachloride	5.47	98.66	5.08	103.91	5.19	103.96	6.74	109.8	5.27	104.08	1.28	120.38
1,1-Dichloropropene	4.89	98.39	4.90	102.03	5.27	104.96	6.28	109.38	4.61	104.41	2.06	119.67
methyl acetate	3.48	98.49	3.66	100.10	2.04	106.73	1.56	109.68	6.77	106.30	0.61	110.70
isobutyl alcohol	11.75	97.32	5.42	104.35	9.19	108.37	8.93	113.85	6.71	110.94	2.86	116.42
Tert Amyl Methyl Ether (TAME)	3.03	98.31	3.31	100.85	2.43	107.32	1.88	111.45	5.74	106.43	1.25	113.28
Benzene	3.51	97.08	4.02	101.05	4.05	104.43	4.91	110.17	4.94	103.43	1.50	117.83
1,2-Dichloroethane	2.97	97.97	3.17	100.49	2.72	105.75	2.50	109.76	5.95	106.14	0.62	114.65
propyl acetate	4.35	106.57	3.28	103.26	2.53	109.39	1.73	109.90	7.36	108.54	1.35	107.40
Trichloroethene	3.54	104.62	4.78	106.66	4.29	108.19	6.03	112.63	4.33	102.84	1.33	115.80
1,4-Dioxane	18.19	109.77	9.14	116.93	10.29	114.88	13.15	102.00	20.39	117.84	4.86	95.99
1,2-Dichloropropane	2.73	103.94	2.79	106.50	2.76	106.46	3.42	112.25	5.67	104.13	1.05	116.07
methyl methacrylate	4.43	106.00	3.53	108.45	2.21	110.08	1.26	114.62	6.81	110.88	3.22	113.88
Dibromomethane	2.39	103.51	2.98	106.61	1.77	108.15	2.16	110.74	6.17	105.93	1.91	113.12



Compound	Concentrator 1 Day 1		Concentrator 2 Day 1		Concentrator 1 Day 2		Concentrator 2 Day 2		Concentrator 1 Day 3		Concentrator 2 Day 3	
	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y	20ppb %RSD	20ppb % Rec'y
Bromodichloromethane	2.60	106.56	2.86	106.96	3.32	108.91	3.09	111.71	5.66	106.81	2.38	114.58
2-chloroethanol	4.18	100.65	3.44	99.72	3.47	104.04	4.38	104.22	5.42	102.93	1.25	101.40
2-nitropropane	3.47	102.09	3.16	95.55	4.30	101.03	3.57	95.54	6.06	100.83	4.31	98.02
cis-1,3-Dichloropropene	2.36	102.82	2.28	105.46	2.68	107.06	2.65	112.99	6.17	106.21	1.07	116.38
4-methyl-2-pentanone	5.35	104.90	3.96	104.40	2.55	108.05	1.66	110.88	6.51	105.21	3.50	109.27
Toluene-d8 SUR	3.57	103.36	3.41	107.04	4.40	105.69	4.77	112.32	4.89	104.00	1.76	118.48
Toluene	3.83	97.84	4.05	102.36	4.15	99.59	4.89	107.10	4.62	97.73	1.77	112.15
ethyl methacrylate	3.58	107.10	3.52	107.61	2.41	112.42	1.95	113.64	6.36	110.26	1.35	112.75
trans-1,3-Dichloropropene	2.40	104.44	1.87	104.31	1.40	110.10	1.75	111.20	6.01	108.95	1.44	113.57
1,1,2-Trichloroethane	3.25	105.28	2.86	106.20	2.25	109.31	2.59	110.87	5.57	106.56	1.41	112.18
Tetrachloroethene	19.64	109.34	15.97	114.68	11.70	126.31	14.18	131.38	8.71	91.23	7.07	94.15
1,3-Dichloropropene	2.83	104.63	2.65	106.63	1.34	107.67	2.64	111.83	6.38	106.16	1.62	112.32
isopropyl acetate	4.73	106.04	3.43	103.32	4.33	111.06	1.96	110.29	6.04	110.38	0.28	109.63
butyl acetate	4.43	105.35	3.71	106.48	2.25	109.50	2.37	112.70	6.43	109.65	1.37	112.48
Dibromochloromethane	3.48	108.67	2.76	109.88	2.37	111.11	2.82	114.43	5.70	109.61	1.89	114.47
2-Hexanone	5.55	104.62	4.15	101.37	2.87	109.20	1.88	108.72	6.98	106.63	2.39	105.32
1,2-Dibromoethane	3.36	106.08	3.19	105.42	2.27	109.69	1.55	112.72	6.08	107.88	2.67	112.22
Chlorobenzene	2.94	95.45	2.97	98.95	2.88	96.31	3.39	101.05	5.98	93.29	1.21	103.78
1,1,1,2-Tetrachloroethane	2.35	100.66	3.04	101.71	3.50	101.57	3.35	103.45	5.19	97.86	1.72	106.13
Ethylbenzene	3.46	97.73	3.95	100.50	4.11	98.42	4.54	102.45	5.16	95.48	1.69	106.02
Xylene (m+p)	3.42	98.44	3.85	101.75	4.02	99.18	4.45	103.48	5.33	95.79	1.43	107.39
Styrene	2.90	99.85	3.10	102.12	2.84	101.34	2.77	104.32	6.08	98.14	0.68	105.60
Xylene (o)	3.48	98.39	3.36	102.75	3.46	99.29	3.60	104.71	5.28	95.83	1.44	108.10
n-amyl acetate	3.88	101.17	3.97	102.63	2.24	103.67	1.40	106.56	6.84	100.83	0.67	104.87
Bromoform	2.72	102.41	3.61	103.91	3.14	102.48	1.45	106.06	6.39	99.41	2.05	102.37
Isopropylbenzene	3.74	98.91	3.96	102.34	3.98	100.22	4.66	104.77	5.11	97.08	1.24	109.05
cis-1,4-dichloro-2-butene	3.54	98.63	3.05	96.46	2.86	104.25	3.27	102.49	7.30	102.56	1.64	101.45
BFB SUR	2.25	93.34	2.59	96.94	2.40	93.39	2.74	99.33	5.68	89.58	1.06	99.98
Bromobenzene	2.49	95.81	2.82	95.78	4.86	96.37	3.65	97.98	5.98	91.90	1.04	96.78
1,2,3-Trichloropropane	2.94	97.26	2.45	96.97	2.57	98.38	2.01	100.27	5.82	95.39	2.27	97.80
1,1,1,2-Tetrachloroethane	3.17	93.82	3.13	95.27	2.95	93.21	2.97	95.94	6.57	93.09	1.61	96.13
n-Propylbenzene	3.66	94.33	3.60	97.87	3.79	94.40	4.60	99.33	4.88	90.98	1.39	102.83
trans-1,4-dichloro-2-butene	3.63	92.58	2.16	89.79	4.02	95.02	3.94	95.58	6.58	93.78	1.17	93.85
2-Chlorotoluene	2.89	93.16	3.36	96.74	3.49	93.78	4.43	99.91	4.76	90.00	1.16	102.25
4-Chlorotoluene	2.73	93.22	3.73	96.71	3.45	93.40	3.58	99.08	5.00	89.26	0.90	99.17
1,3,5-Trimethylbenzene	.07	94.78	3.63	98.22	3.57	94.86	4.39	100.14	4.68	91.69	1.56	103.72
tert-Butylbenzene	4.05	94.50	4.48	98.51	3.98	94.47	4.83	100.10	4.40	91.29	1.20	103.82
sec-Butylbenzene	3.60	96.09	3.80	98.97	3.35	96.85	4.93	101.10	4.59	93.25	0.88	105.25
1,2,4-Trimethylbenzene	3.24	95.56	3.37	98.79	3.22	96.03	3.86	100.61	4.93	92.39	1.34	103.17
nitrobenzene	7.51	92.97	5.00	87.75	7.07	87.55	4.70	84.78	11.02	81.11	1.04	77.37
1,3-Dichlorobenzene	2.67	92.88	2.37	95.06	2.34	93.04	3.24	97.64	5.55	89.10	0.73	99.18
1,4-Dichlorobenzene	2.33	92.04	2.94	94.44	2.61	92.35	3.08	96.08	5.00	88.76	0.69	97.45
Isopropyltoluene	3.61	95.34	3.59	98.14	3.93	96.25	4.93	100.54	4.94	92.70	1.58	104.20
1,2,-Dichlorobenzene	2.58	93.78	2.96	95.19	2.07	94.03	2.82	97.03	5.86	90.39	1.41	97.35
n-Butylbenzene	4.01	93.62	3.92	98.19	4.27	96.00	4.62	100.99	4.92	93.04	1.46	105.03
1,2-Dibromo-3-chloropropane	4.22	94.90	3.84	91.97	5.37	95.96	2.54	93.08	5.62	92.29	2.34	91.03
1,2,4-Trichlorobenzene	2.18	94.30	2.71	97.33	2.08	95.61	2.39	100.10	5.14	91.50	0.68	99.90
Naphthalene	3.74	95.90	2.54	96.92	2.25	97.22	1.24	99.74	6.54	93.14	1.05	96.75
Hexachlorobutadiene	5.07	94.87	5.39	96.09	4.18	98.60	5.57	100.12	5.50	97.00	0.28	104.18
1,2,3-Trichlorobenzene	2.66	93.64	3.19	97.28	2.11	95.04	2.11	100.20	5.64	90.16	1.00	98.70

Table 5: Precision and Accuracy Data over Three Days (CCC Compounds Highlighted in Orange)

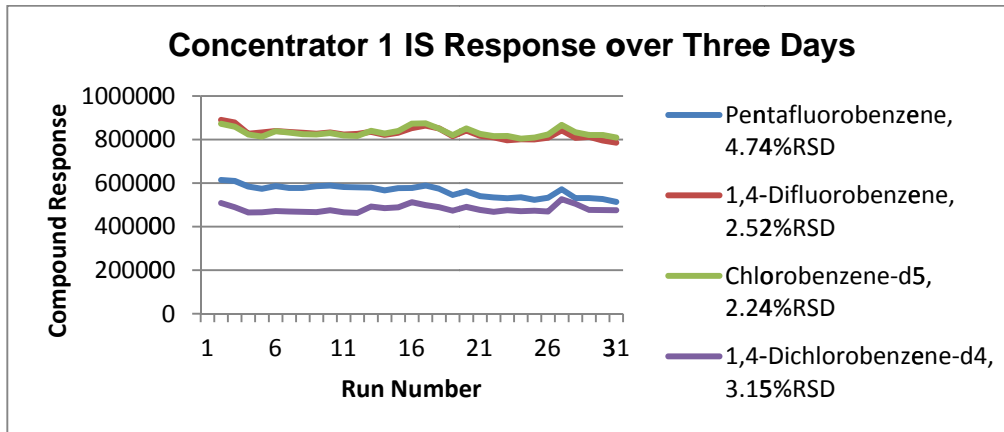


Figure 3: Concentrator 1 Internal Standard Study

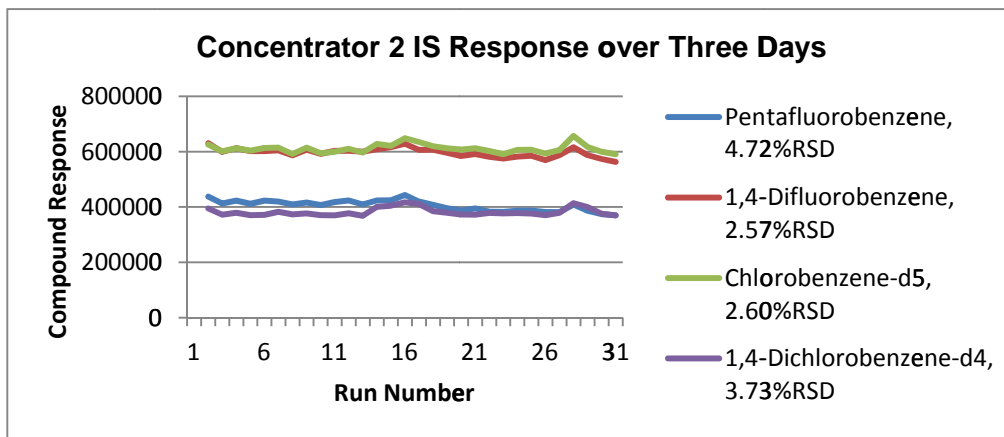


Figure 4: Concentrator 2 Internal Standard Study

Compound	Concentrator 1 Day 1	Concentrator 2 Day 1	Concentrator 1 Day 2	Concentrator 2 Day 2	Concentrator 1 Day 3	Concentrator 2 Day 3
	%RSD	%RSD	%RSD	%RSD	%RSD	%RSD
pentafluorobenzene	1.61	1.47	3.68	1.99	1.42	2.36
1,4-Difluorobenzene	1.80	1.16	2.71	1.70	1.36	2.25
Chlorobenzene-d5	1.51	1.43	2.55	1.34	0.67	1.44
1,4-Dichlorobenzene-d4	1.54	1.20	2.09	1.03	0.10	1.79

Table 6: Internal Standard Daily Precision and Accuracy

Conclusion:

The data presented displays the capability of the dual sampling system to not only produce a valid EPA Method 8260b curve, but also to maintain the curve and produce viable CCV samples and hold precision and accuracy over an extended period of time. A single system is limited by purge and trap method requirements and thus the sampling time is approximately one sample every 25 to 30 minutes. The dual system on the other hand, is limited only by the GC/MS cycle time and therefore sample production can be increased to one sample every 15 minutes. The dual system requires two purge and trap concentrators and only one Centurion WS autosampler and one GC/MS. This configuration delivers the productivity of two full systems at a cost of little more than one.

Headquarters

JSB International
Tramstraat 15
5611 CM Eindhoven
T +31 (0) 40 251 47 53
F +31 (0) 40 251 47 58

Zoex Europe
Tramstraat 15
5611 CM Eindhoven
T +31 (0) 40 257 39 72
F +31 (0) 40 251 47 58

Sales and Service

Netherlands
Apolloweg 2B
8239 DA Lelystad
T +31 (0) 320 87 00 18
F +31 (0) 320 87 00 19

Belgium
Grensstraat 7
Box 3 1831 Diegem
T +32 (0) 2 721 92 11
F +32 (0) 2 720 76 22

Germany
Max-Planck-Strasse 4
D-47475 Kamp-Lintfort
T +49 (0) 28 42 9280 799
F +49 (0) 28 42 9732 638

UK & Ireland
Cedar Court,
Grove Park Business Est.
White Waltham, Maidenhead
Berks, SL6 3LW
T +44 (0) 16 288 220 48
F +44 (0) 70 394 006 78

info@go-jsb.com
www.go-jsb.com

With courtesy of

