

1 **Soil Vapor Sampling for VOCs using Passive Diffusive Samplers - Laboratory Experiments**

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13 **ELECTRONIC SUPPLEMENTAL INFORMATION**

14 Measured concentrations for the 1 ppm<sub>v</sub>, 10 ppm<sub>v</sub> and 100 ppm<sub>v</sub> tests are presented in Tables

15 ES1A, ES1B and ES1C, respectively. Note: ND – Not Detected

16 **Table ES1A:** Concentrations measured in exposure chamber at 1 ppm<sub>v</sub> (NAPH=0.1 ppm<sub>v</sub>)

Ippm <sub>v</sub>		Analyte	MEK	NHEX	12DCA	111TCA	BENZ	CTET	TCE	PCE	124TMB	NAPH
<b>WMS Anasorb 747</b>	Uptake Rate	(mL/min)	1.3	1.3	2.6	1.3	2.2	1.5	3.3	5.4	13	26
1-WMS-a		(µg/m <sup>3</sup> )	ND	1,650	1,020	1,260	574	1,420	1,320	1,620	960	17
1-WMS-b		(µg/m <sup>3</sup> )	ND	1,650	1,010	1,260	574	1,420	1,320	1,500	853	16
1-WMS-c		(µg/m <sup>3</sup> )	ND	2,800	1,060	1,390	636	1,560	1,320	1,620	880	12
		Mean		2,040	1,030	1,300	594	1,470	1,320	1,580	898	15
		std.dev.		661	27	76	36	77	0	72	56	3
		RSD		0.32	0.03	0.06	0.06	0.05	0.00	0.05	0.06	0.18
<b>ATD Tenax TA</b>	Uptake Rate	(mL/min)	0.50	0.50	0.50	0.50	0.35	0.50	0.41	0.50	0.62	0.50
1-ATD-a		(µg/m <sup>3</sup> )	ND	1,600	1,000	1,000	2,190	1,530	2,280	2,070	1,020	133
1-ATD-b		(µg/m <sup>3</sup> )	ND	1,470	933	867	1,910	1,330	2,110	1,870	753	ND
1-ATD-c		(µg/m <sup>3</sup> )	ND	1,530	1,070	1,070	1,910	1,730	2,200	1,930	914	ND
		Mean		1,530	1,000	978	2,000	1,530	2,200	1,960	896	133
		std.dev.		67	67	102	165	200	81	102	135	
		RSD		0.04	0.07	0.10	0.08	0.13	0.04	0.05	0.15	
<b>Radiello Charcoal</b>	Uptake Rate	(mL/min)	79	66	77	62	80	67	69	59	50	25
1-RAD-a		(µg/m <sup>3</sup> )	611	1,020	1,150	1,730	850	1,610	1,430	1,530	362	ND
1-RAD-b		(µg/m <sup>3</sup> )	637	1,340	1,380	2,170	1,070	1,900	1,790	2,060	530	ND
1-RAD-c		(µg/m <sup>3</sup> )	645	1,190	1,240	1,940	960	1,840	1,600	1,830	476	ND
		Mean	631	1,180	1,260	1,950	961	1,790	1,610	1,810	456	
		std.dev.	18	163	115	222	111	153	177	265	86	
		RSD	0.03	0.14	0.09	0.11	0.12	0.09	0.11	0.15	0.19	
<b>3M OVM 3500</b>	Uptake Rate	(mL/min)	36	32	33	31	36	30	31	28	26	25
1-3M-a		(µg/m <sup>3</sup> )	322	979	964	1,400	1,220	1,550	1,390	2,000	1,030	ND
1-3M-b		(µg/m <sup>3</sup> )	313	865	873	1,290	826	1,330	1,290	1,760	947	ND
1-3M-c		(µg/m <sup>3</sup> )	331	1,040	1,100	1,510	939	1,660	1,500	2,110	1,120	ND
		Mean	322	962	981	1,400	995	1,510	1,390	1,960	1,030	
		std.dev.	9	90	116	108	203	169	107	179	84	
		RSD	0.03	0.09	0.12	0.08	0.20	0.11	0.08	0.09	0.08	
<b>SKC Carbograph 5</b>	Uptake Rate	(mL/min)	17	14	13	13	16	13	15	13	13	13
1-SKC-a		(µg/m <sup>3</sup> )	3,020	1,100	1,010	1,260	1,090	1,050	1,040	1,290	900	125
1-SKC-b		(µg/m <sup>3</sup> )	2,850	1,270	1,284	1,660	1,200	1,470	1,310	1,670	1,180	156
1-SKC-c		(µg/m <sup>3</sup> )	2,770	980	957	1,190	1,150	1,050	938	1,210	842	120
		Mean	2,880	1,120	1,080	1,371	1,150	1,190	1,100	1,390	974	134
		std.dev.	130	145	175	252	56	245	192	249	181	19
		RSD	0.05	0.13	0.16	0.18	0.05	0.21	0.18	0.18	0.19	0.14
1-SUMMA-a		(µg/m <sup>3</sup> )	1,710	1,620	1,810	2,450	1,340	2,580	2,140	2,760	1,950	144
1-SUMMA-b		(µg/m <sup>3</sup> )	1,680	1,580	1,770	2,340	1,300	2,700	2,030	2,560	1,800	139
1-SUMMA-c		(µg/m <sup>3</sup> )	1,230	1,220	1,320	1,780	944	2,040	1,530	1,870	1,150	80
		Mean	1,540	1,470	1,640	2,190	1,190	2,440	1,900	2,400	1,640	121
		std.dev.	269	218	275	357	217	351	321	470	426	36
		RSD	0.17	0.15	0.17	0.16	0.18	0.14	0.17	0.20	0.26	0.29

17 **Table ES1B:** Concentrations measured in exposure chamber at 10 ppm<sub>v</sub> (NAPH=1ppm<sub>v</sub>)

10 ppm <sub>v</sub>		Analyte	MEK	NHEX	12DCA	111TCA	BENZ	CTET	TCE	PCE	124TMB	NAPH
<b>WMS Anasorb 747</b>	Uptake Rate	(mL/min)	1.3	1.3	2.6	1.3	2.2	1.5	3.3	5.4	13	26
10-WMS-a		(µg/m <sup>3</sup> )	8,270	20,100	20,700	28,900	17,100	33,300	26,400	29,900	17,300	365
10-WMS-b		(µg/m <sup>3</sup> )	7,730	18,600	19,400	26,000	15,500	31,100	25,400	30,500	18,400	286
10-WMS-c		(µg/m <sup>3</sup> )	9,600	18,600	20,700	26,200	17,100	31,100	25,400	29,900	18,700	339
		Mean	8,530	19,100	20,200	27,000	16,500	31,900	25,700	30,100	18,100	330
		std.dev.	961	881	746	1,597	895	1,283	587	360	706	40
		RSD	0.11	0.05	0.04	0.06	0.05	0.04	0.02	0.01	0.04	0.12
<b>ATD Tenax TA</b>	Uptake Rate	(mL/min)	0.50	0.50	0.50	0.50	0.35	0.50	0.41	0.50	0.62	0.50
10-ATD-a		(µg/m <sup>3</sup> )	ND	26,700	26,700	24,700	34,300	38,700	42,300	40,700	19,400	1,200
10-ATD-b		(µg/m <sup>3</sup> )	ND	28,000	26,700	23,300	35,200	36,700	42,300	40,700	18,800	1,400
10-ATD-c		(µg/m <sup>3</sup> )	ND	27,300	26,700	26,700	35,200	33,300	42,300	41,300	19,400	1,200
		Mean		27,300	26,700	24,889	34,900	36,200	42,300	40,900	19,200	1,270
		std.dev.		667	0	1,678	550	2,694	0	385	310	115
		RSD		0.02	0.00	0.07	0.02	0.07	0.00	0.01	0.02	0.09
<b>Radiello Charcoal</b>	Uptake Rate	(mL/min)	79	66	77	62	80	67	69	59	50	25
10-RAD-a		(µg/m <sup>3</sup> )	8,000	22,700	23,500	36,800	18,100	34,600	31,000	35,000	8,650	ND
10-RAD-b		(µg/m <sup>3</sup> )	5,930	17,700	18,200	28,600	14,000	27,000	24,000	26,800	6,000	ND
10-RAD-c		(µg/m <sup>3</sup> )	8,300	23,100	23,800	37,500	18,400	35,200	31,600	35,700	8,030	ND
		Mean	7,400	21,200	21,800	34,300	16,800	32,200	28,900	32,500	7,560	
		std.dev.	1,280	3,000	3,130	4,920	2,420	4,590	4,230	4,970	1,390	
		RSD	0.17	0.14	0.14	0.14	0.14	0.14	0.15	0.15	0.18	
<b>3M OVM 3500</b>	Uptake Rate	(mL/min)	36	32	33	31	36	30	31	28	26	25
10-3M-a		(µg/m <sup>3</sup> )	3,500	17,700	19,100	27,000	14,100	32,000	27,900	38,700	19,500	420
10-3M-b		(µg/m <sup>3</sup> )	3,320	18,800	20,100	28,000	15,000	33,100	28,900	39,900	20,800	420
10-3M-c		(µg/m <sup>3</sup> )	3,590	20,800	22,100	30,200	16,000	36,400	32,200	43,400	22,000	474
		Mean	3,470	19,100	20,420	28,400	15,000	33,800	29,700	40,700	20,800	438
		std.dev.	141	1,590	1,530	1,650	939	2,300	2,230	2,440	1,300	31
		RSD	0.04	0.08	0.08	0.06	0.06	0.07	0.08	0.06	0.06	0.07
<b>SKC Charcoal</b>	Uptake Rate	(mL/min)	17	14	13	13	16	13	15	13	13	13
10-SKC-a		(µg/m <sup>3</sup> )	6,660	33,700	33,500	44,100	22,200	46,800	37,100	51,000	26,000	ND
10-SKC-b		(µg/m <sup>3</sup> )	5,080	25,700	32,100	40,700	20,500	44,100	34,600	47,300	23,500	ND
10-SKC-c		(µg/m <sup>3</sup> )	7,240	31,300	32,700	41,700	21,600	45,600	36,200	49,300	25,500	ND
		Mean	6,320	30,300	32,800	42,200	21,400	45,500	36,000	49,200	25,000	
		std.dev.	1,120	4,130	719	1,730	868	1,340	1,280	1,850	1,300	
		RSD	0.18	0.14	0.02	0.04	0.04	0.03	0.04	0.04	0.05	
10-SUMMA-a		(µg/m <sup>3</sup> )	14,100	27,300	30,100	41,700	22,100	41,300	35,600	44,200	23,500	1,068
10-SUMMA-b		(µg/m <sup>3</sup> )	15,300	27,300	30,700	41,700	22,100	47,300	35,600	43,500	23,000	961
10-SUMMA-c		(µg/m <sup>3</sup> )	16,500	28,400	31,300	43,400	23,100	49,700	37,200	47,000	26,500	1,230
10-SUMMA-d		(µg/m <sup>3</sup> )	16,200	26,900	28,900	41,800	21,500	46,100	33,400	38,700	17,500	748
10-SUMMA-e		(µg/m <sup>3</sup> )	16,200	26,200	28,500	39,500	21,000	44,900	32,300	38,700	18,500	748
		Mean	15,700	27,200	29,900	41,600	21,900	45,900	34,800	42,400	21,800	951
		std.dev.	983	778	1,220	1,390	849	3,100	1,960	3,640	3,740	208
		RSD	0.06	0.03	0.04	0.03	0.04	0.07	0.06	0.09	0.17	0.22

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19 **Table ES1C:** Concentrations measured in the exposure chamber at 100 ppm<sub>v</sub>

100 ppm <sub>v</sub>			MEK	NHEX	12DCA	11TCA	BENZ	CTET	TCE	PCE
<b>WMS Anasorb 747</b>	Uptake Rate	(mL/min)	1.3	1.3	2.6	1.3	2.2	1.5	3.3	5.4
100-WMS-a		(µg/m <sup>3</sup> )	98,700	181,000	207,000	252,000	171,000	311,000	264,000	324,000
100-WMS-b		(µg/m <sup>3</sup> )	120,000	201,000	220,000	262,000	186,000	333,000	274,000	324,000
100-WMS-c		(µg/m <sup>3</sup> )	107,000	168,000	194,000	236,000	155,000	289,000	244,000	293,000
		Mean	108,000	183,000	207,000	250,000	171,000	311,000	261,000	314,000
		std.dev.	11,000	16,700	12,900	13,200	15,500	22,200	15,500	18,000
		RSD	0.10	0.09	0.06	0.05	0.09	0.07	0.06	0.06
<b>ATD Tenax TA</b>	Uptake Rate	(mL/min)	0.50	0.50	0.50	0.50	0.35	0.50	0.41	0.50
100-ATD-a		(µg/m <sup>3</sup> )	140,000	307,000	320,000	380,000	467,000	440,000	561,000	533,000
100-ATD-b		(µg/m <sup>3</sup> )	133,000	280,000	293,000	353,000	429,000	407,000	512,000	487,000
100-ATD-c		(µg/m <sup>3</sup> )	147,000	300,000	307,000	367,000	457,000	427,000	537,000	513,000
		Mean	140,000	296,000	307,000	367,000	451,000	424,000	537,000	511,000
		std.dev.	6,670	13,900	13,300	13,300	19,800	16,800	24,400	23,400
		RSD	0.05	0.05	0.04	0.04	0.04	0.04	0.05	0.05
<b>Radiello Charcoal</b>	Uptake Rate	(mL/min)	79	66	77	62	80	67	69	59
100-RAD-a		(µg/m <sup>3</sup> )	67,200	247,000	260,000	396,000	202,000	386,000	357,000	414,000
100-RAD-b		(µg/m <sup>3</sup> )	78,400	231,000	252,000	382,000	192,000	372,000	338,000	343,000
100-RAD-c		(µg/m <sup>3</sup> )	88,400	236,000	245,000	377,000	190,000	369,000	340,000	410,000
		Mean	78,000	238,000	253,000	385,000	195,000	376,000	345,000	389,000
		std.dev.	10,600	8,140	7,440	9,800	6,260	8,890	10,300	39,600
		RSD	0.14	0.03	0.03	0.03	0.03	0.02	0.03	0.10
<b>3M OVM 3500</b>	Uptake Rate	(mL/min)	36	32	33	31	36	30	31	28
100-3M-a		(µg/m <sup>3</sup> )	40,500	188,000	201,000	280,000	141,000	331,000	300,000	376,000
100-3M-b		(µg/m <sup>3</sup> )	39,600	188,000	201,000	291,000	141,000	342,000	311,000	399,000
100-3M-c		(µg/m <sup>3</sup> )	40,500	177,000	191,000	280,000	141,000	320,000	279,000	364,000
		Mean	40,200	184,000	197,000	284,000	141,000	331,000	297,000	379,000
		std.dev.	532	6,010	5,800	6,230	0	11,040	16,400	18,000
		RSD	0.01	0.03	0.03	0.02	0.00	0.03	0.06	0.05
<b>SKC Charcoal</b>	Uptake Rate	(mL/min)	17	14	13	13	16	13	15	13
1-SKC-a		(µg/m <sup>3</sup> )	43,100	234,000	295,000	382,000	172,000	425,000	334,000	439,000
1-SKC-b		(µg/m <sup>3</sup> )	51,200	258,000	297,000	376,000	165,000	421,000	331,000	443,000
1-SKC-c		(µg/m <sup>3</sup> )	54,200	295,000	346,000	451,000	189,000	489,000	402,000	535,000
		Mean	49,500	262,000	313,000	403,000	175,000	445,000	355,000	473,000
		std.dev.	5,720	31,100	29,300	41,900	12,500	38,100	40,100	54,400
		RSD	0.12	0.12	0.09	0.10	0.07	0.09	0.11	0.12
10-SUMMA-a		(µg/m <sup>3</sup> )	123,000	215,000	231,000	311,000	166,000	354,000	252,000	235,000
10-SUMMA-b		(µg/m <sup>3</sup> )	117,000	205,000	202,000	296,000	153,000	330,000	241,000	276,000
10-SUMMA-c		(µg/m <sup>3</sup> )	138,000	208,000	223,000	295,000	163,000	336,000	252,000	283,000
10-SUMMA-d		(µg/m <sup>3</sup> )	147,000	215,000	231,000	300,000	166,000	342,000	252,000	235,000
10-SUMMA-e		(µg/m <sup>3</sup> )	150,000	223,000	239,000	317,000	176,000	366,000	279,000	325,000
		Mean	135,000	213,000	225,000	304,000	165,000	345,000	255,000	271,000
		std.dev.	14,600	7,000	14,200	9,860	8,170	14,400	14,300	37,700
		RSD	0.11	0.03	0.06	0.03	0.05	0.04	0.06	0.14

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