

TOLUENE VALIDATION		1995							
The exposure level (1EL) was 100 ppm.									
Using our published sampling rate of 31.4 +/- .6 cc/min, an 8 hr exposure at									
1 EL = 5.68 mg, 0.5 EL = 2.84 mg and 0.1 EL = 0.57 mg.									
Desorption Efficiency									
1 1/2 mL CS2 used for desorption.				GC/FID 30M x .25mm x .25um DB5 or DBWax.					
Spike	mg	recovery	ave rec	std dev	cv	ave rec			
5.636	5.842841	1.0367	1.019875	0.012286	1.204671	1.000117			
5.636	5.676579	1.0072							
5.636	5.739139	1.0183							
5.636	5.733503	1.0173							
3.0345	3.118859	1.0278	1.01965	0.026215	2.570962				
3.0345	3.125535	1.03							
3.0345	2.977148	0.9811							
3.0345	3.15497	1.0397							
0.434	0.407439	0.9388	0.960825	0.021069	2.192753				
0.434	0.410911	0.9468							
0.434	0.424756	0.9787							
0.434	0.424886	0.979							
Storage									
Spike with 2.601 mg (.5EL) plus 40 uL H2O stored at RT and 4 C.									
mg					Recovery				
initial	2wks RT	2wks cold	3wks RT	3wks cold	initial	2wks RT	2wks cold	3wks RT	3wks cold
2.658	2.541	2.704	2.627	2.684	1.021915	0.976932	1.0396	1.009996	1.031911
2.67	2.628	2.643	2.666	2.716	1.026528	1.010381	1.016148	1.02499	1.044214
2.558	2.678	2.68	2.742	2.747	0.983468	1.029604	1.030373	1.05421	1.056132
2.644	2.651	2.719	2.756	2.668	1.016532	1.019223	1.045367	1.059592	1.025759
				average	1.012111	1.009035	1.032872	1.037197	1.039504
				std dev	0.019527	0.022798	0.012746	0.023663	0.013482
				cv	1.929361	2.259428	1.233991	2.281485	1.296918

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Humidity Effect on Uptake Linearity									
Exposure to 94.8 ppm @ 50%RH									
time min	mg	mg corr	SR	ave SR	std dev	ave mg	std dev	cv(%)	
120	1.387	1.363	31.71884	30.75074	1.120409	1.321	0.048134	3.644	
120	1.291	1.268	29.52345						
120	1.356	1.332	31.00992						
242	2.801	2.752	31.76288	30.99555	1.509278	2.685	0.130761	4.869	
242	2.58	2.535	29.25678						
242	2.819	2.770	31.967						
362	4.133	4.061	31.33134	29.69895	1.430686	3.849	0.185415	4.817	
362	3.781	3.715	28.66291						
362	3.839	3.772	29.10259						
482	5.478	5.382	31.18869	31.24752	0.247277	5.392	0.04267	0.791	
482	5.451	5.355	31.03497						
482	5.536	5.439	31.51891						
		Ave SR	30.7						
		std dev	1.2						
		cv	3.9						
Exposure to 93.9 ppm @80%RH									
time min	mg	mg corr	SR	ave SR	std dev	ave mg	std dev	cv	
130	1.453	1.441197	30.96615	30.36941	1.08941	1.413	0.050702	3.587	
130	1.366	1.354904	29.11201						
130	1.456	1.444173	31.03008						
250	2.934	2.910167	32.51509	30.78997	2.272368	2.756	0.203382	7.380	
250	2.546	2.525319	28.21521						
250	2.855	2.831809	31.6396						
370	3.778	3.747311	28.28949	29.39521	0.995823	3.894	0.13191	3.388	
370	4.036	4.003216	30.22138						
370	3.963	3.930809	29.67476						
490	5.359	5.315469	30.30069	29.6825	1.41681	5.207	0.248543	4.773	
490	5.427	5.382917	30.68518						
490	4.963	4.922686	28.06164						
		Ave SR	30.1						
		std dev	1.4						
		cv	4.7						

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Concentration-Time									
Expose 477 min @ 186.4 ppm (2EL) @ 50%RH									
mg	mg corr	sr	ave sr	std dev	cv	bias	acc		
10.555	10.34804	30.88335	32.00155	0.785679	2.455128	1.915767	6.826023		
10.932	10.71765	31.98643							
11.058	10.84118	32.3551							
11.365	11.14216	33.25337							
10.813	10.60098	31.63825							
10.9	10.68627	31.8928							
Expose 15 and 480 min @ 11.2 ppm (.1EL) @50%RH									
0.0166	0.016275	25.70569	27.07356	1.347908	4.978687	-13.7785	23.73583		
0.0178	0.017451	27.56393							
0.0163	0.01598	25.24113							
0.0175	0.017157	27.09937							
0.0183	0.017941	28.3382							
0.0184	0.018039	28.49306							
0.609	0.597059	29.47057	29.42298	0.84738	2.879994	-6.29623	12.05622		
0.6143	0.602255	29.72704							
0.6344	0.621961	30.69972							
0.5891	0.577549	28.50757							
0.5878	0.576275	28.44466							
0.6135	0.601471	29.68833							
Exposure 15 min @ 196 ppm (2EL) @ 50%RH									
0.36145	0.354363	31.9839	31.93729	1.524634	4.773837	1.711127	11.2588		
0.38584	0.378275	34.14211							
0.33521	0.328637	29.66198							
0.35031	0.343441	30.99814							
0.37025	0.36299	32.76259							
0.36248	0.355373	32.07504							

Face Velocity-Orientation						
mean	std dev	coef var		Bias=	-2.8	
1.338	0.086	6.4		Accuracy =	15.6	
Using data from 19-399 fpm.			SR =	30.50708		
Excludes 3, 10 and 14 fpm data.						
Mean corrected for rec of .97 =						
1.380						
Amount expected =			1.42			
Data corrected to 100ppm for 120 min.						
mg	mg corr	av par/per	std dev	ave	std dev	fpm
1.435	1.435	1.330	0.131	1.316	0.101	28.8
1.372	1.372					
1.183	1.183					
1.388	1.388	1.302	0.088			
1.307	1.307					
1.212	1.212					
1.208	1.381	1.289	0.080	1.308	0.085	19
1.088	1.243					
1.087	1.242					
1.255	1.434	1.327	0.103			
1.153	1.318					
1.075	1.229					
1.252	1.192	1.131	0.094	1.166	0.074	9.7
1.238	1.179					
1.074	1.023					
1.27	1.210	1.200	0.034			
1.221	1.163					
1.29	1.229					
1.119	1.079	1.157	0.090	1.211	0.086	14.2

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1.178	1.136							
1.302	1.256							
1.274	1.229	1.266	0.037					
1.312	1.265							
1.351	1.303							
1.259	1.201	1.271	0.076	1.310	0.067	24		
1.417	1.351							
1.324	1.263							
1.404	1.339	1.349	0.032					
1.452	1.385							
1.387	1.323							
1.244	1.208	1.196	0.111	1.272	0.117	59.5		
1.113	1.081							
1.34	1.301							
1.365	1.325	1.348	0.071					
1.47	1.427							
1.329	1.290							
1.528	1.455	1.410	0.040	1.410	0.040	399		
1.538	1.465							
1.448	1.379							
1.467	1.397							
1.441	1.372							
1.461	1.391							
1.79177	1.171	1.174	0.007137	1.145	0.05778	3		
1.80833	1.182							
1.78772	1.168							
1.74597	1.141	1.117	0.076493					
1.57744	1.031							
1.80238	1.178							
2.31486	1.346	1.382	0.040075	1.393	0.047195	340 w fan		
2.36431	1.375							
2.45103	1.425							
2.53305	1.473	1.403	0.060133					
2.35019	1.366							
2.35787	1.371							
1.17468	0.947	0.999	0.050946	0.985	0.057546	3		
1.30096	1.049							

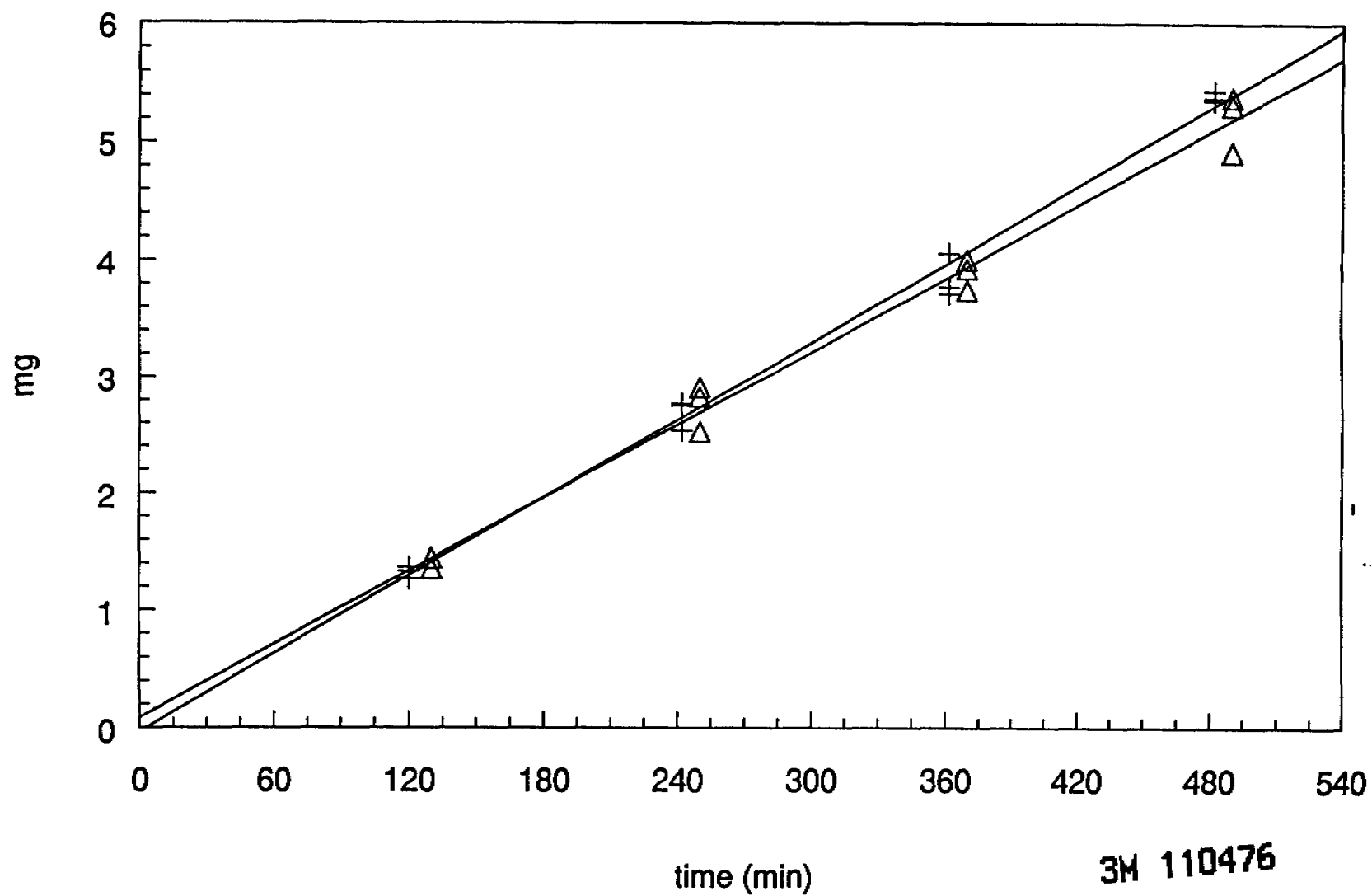
1.24139	1.001								
1.28218	1.034	0.970	0.070984						
1.10808	0.894								
1.2177	0.982								
1.62134	1.329	1.359	0.061718	1.359	0.048648	340 w fan			
1.60883	1.319								
1.74505	1.430								
1.59486	1.307	1.358	0.045897						
1.67304	1.371								
1.70339	1.396								
Temperature Effects									
Toluene Temperature Effect Study October, 1995									
Temp	time	Conc	mg	mg corr	SR	ave SR	sd	cv	bias
9 C	240	130	3.911	3.911	33.26319	30.09223	1.890028	6.280783	-0.21353
9 C	240	130	3.502	3.502	29.78463				
9 C	240	130	3.606	3.606	30.66915				
9 C	240	130	3.408	3.408	28.98516				
9 C	240	130	3.555	3.555	30.2354				
9 C	240	130	3.247	3.247	27.61585				
40 C	240	130	3.789	3.789	32.22557	31.46863	0.721836	2.293829	4.35064
40 C	240	130	3.743	3.743	31.83434				
40 C	240	130	3.741	3.741	31.81733				
40 C	240	130	3.685	3.685	31.34105				
40 C	240	130	3.698	3.698	31.45162				
40 C	240	130	3.544	3.544	30.14184				
RT (23 C)	244	130	3.635	3.635	30.40898	30.15662	0.400726	1.328817	
RT (23 C)	244	130	3.597	3.597	30.09109				
RT (23 C)	244	130	3.591	3.591	30.0409				
RT (23 C)	244	130	3.681	3.681	30.7938				
RT (23 C)	244	130	3.541	3.541	29.62262				
RT (23 C)	244	130	3.584	3.584	29.98234				

TOLUENE

95ppm•50%RH-94ppm•80%RH

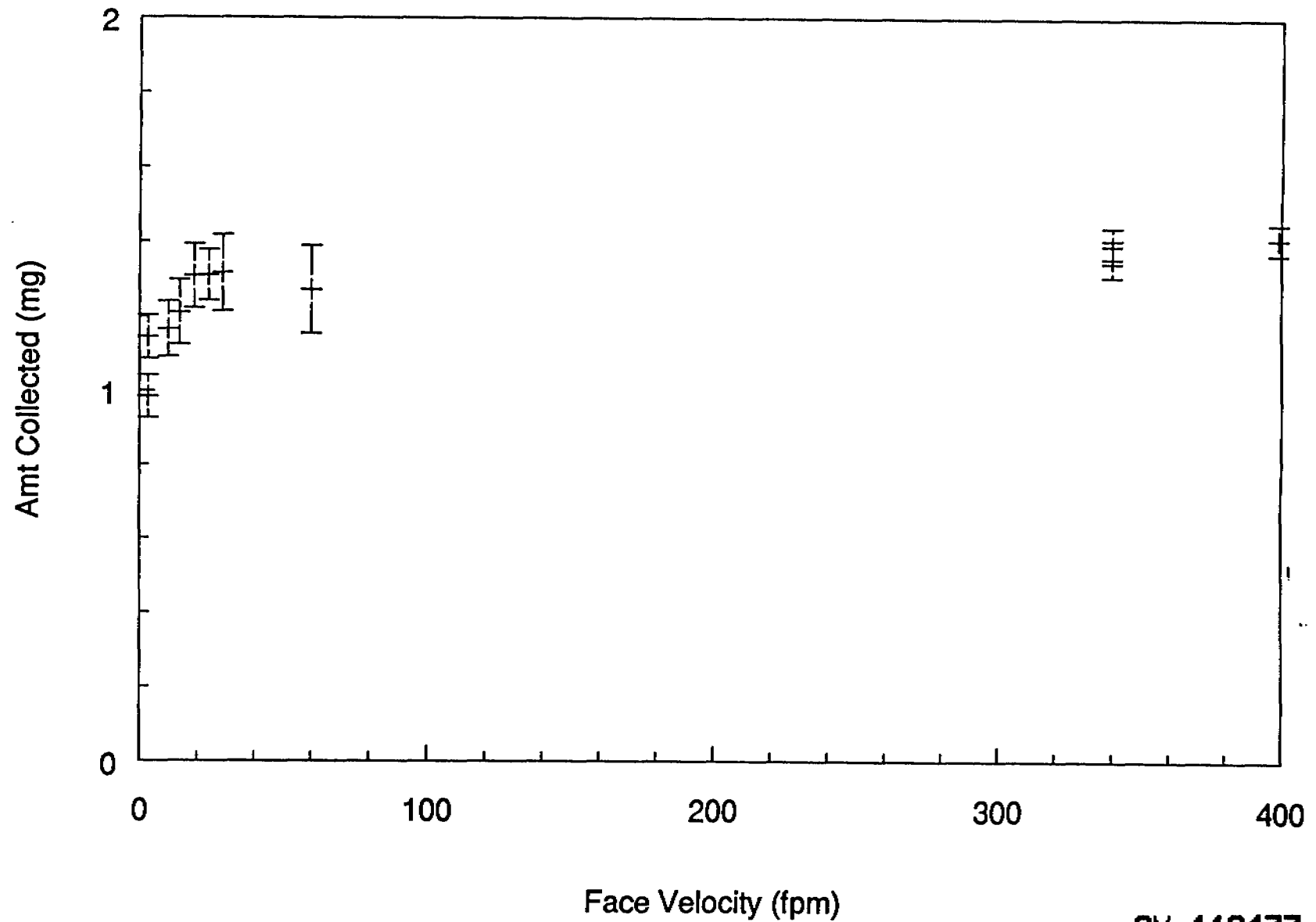
+ 50%RH

△ 80%RH



Face Velocity

Toluene 100 ppm 2 hrs



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