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**CS INSTRUMENT CORPORATION**

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Operator: yv  
Submitter: ruby  
File: C:\9500\DATA\I.SMP

LP Analysis Time: 27/11/2008 18:12:50  
HP Analysis Time: 28/11/2008 15:27:53  
Report Time: 18/12/2008 9:27:32

Sample Weight: 1.3600 g  
Correction Type: None  
Show Neg. Int: No

### Summary Report

#### Penetrometer parameters

Penetrometer:	#s/n - (10) 5 Bulb, 1.131 Stem, Powder		
Pen. Constant:	22.065 $\mu\text{L/pF}$	Pen. Weight:	60.3200 g
Stem Volume:	1.1310 mL	Max. Head Pressure:	0.030682 MPa
Pen. Volume:	6.9000 mL	Assembly Weight:	135.7500 g

#### Hg Parameters

Adv. Contact Angle:	130.000 degrees	Rec. Contact Angle:	130.000 degrees
Hg Surface Tension:	485.000 dynes/cm	Hg Density:	13.5335 g/mL

#### User Parameters

Param 1:	0.000	Param 2:	0.000	Param 3:	0.000
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#### Low Pressure:

Evacuation Pressure:	100 $\mu\text{mHg}$
Evacuation Time:	5 mins
Mercury Filling Pressure:	0.0042 MPa
Equilibration Time:	20 secs

#### High Pressure:

Equilibration Time:	60 secs
---------------------	---------

No Blank Correction

(From Pressure 0.0007 to 413.6854 MPa)

#### Intrusion Data Summary

Total Intrusion Volume =	0.6236 mL/g
Total Pore Area =	48.427 $\text{m}^2/\text{g}$
Median Pore Diameter (Volume) =	0.1188 $\mu\text{m}$
Median Pore Diameter (Area) =	0.0202 $\mu\text{m}$
Average Pore Diameter (4V/A) =	0.0515 $\mu\text{m}$
Apparent (skeletal) Density =	2.3498 g/mL
Porosity =	59.4386 %
Stem Volume Used =	75 %



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0.0042	294.9528	0.0000	$0.000 \times 10^0$	$0.000 \times 10^0$
0.0090	138.4819	0.0169	$1.078 \times 10^{-4}$	$5.137 \times 10^{-2}$
0.0111	112.5009	0.0193	$9.307 \times 10^{-5}$	$2.680 \times 10^{-2}$
0.0129	96.4085	0.0209	$9.723 \times 10^{-5}$	$2.334 \times 10^{-2}$
0.0149	83.5365	0.0233	$1.923 \times 10^{-4}$	$3.976 \times 10^{-2}$
0.0172	72.3978	0.0249	$1.379 \times 10^{-4}$	$2.472 \times 10^{-2}$
0.0199	62.6319	0.0263	$1.486 \times 10^{-4}$	$2.305 \times 10^{-2}$
0.0231	54.0396	0.0283	$2.351 \times 10^{-4}$	$3.152 \times 10^{-2}$
0.0267	46.6824	0.0296	$1.701 \times 10^{-4}$	$1.969 \times 10^{-2}$
0.0311	40.0794	0.0312	$2.499 \times 10^{-4}$	$2.491 \times 10^{-2}$
0.0367	34.0092	0.0328	$2.531 \times 10^{-4}$	$2.154 \times 10^{-2}$
0.0427	29.1752	0.0343	$3.119 \times 10^{-4}$	$2.264 \times 10^{-2}$
0.0498	25.0596	0.0362	$4.562 \times 10^{-4}$	$2.843 \times 10^{-2}$
0.0579	21.5320	0.0379	$5.000 \times 10^{-4}$	$2.677 \times 10^{-2}$
0.0675	18.4849	0.0397	$5.881 \times 10^{-4}$	$2.704 \times 10^{-2}$
0.0788	15.8157	0.0418	$7.993 \times 10^{-4}$	$3.150 \times 10^{-2}$
0.0920	13.5605	0.0449	$1.337 \times 10^{-3}$	$4.513 \times 10^{-2}$
0.1074	11.6092	0.0473	$1.268 \times 10^{-3}$	$3.668 \times 10^{-2}$
0.1253	9.9531	0.0502	$1.735 \times 10^{-3}$	$4.298 \times 10^{-2}$
0.1471	8.4746	0.0534	$2.155 \times 10^{-3}$	$4.562 \times 10^{-2}$
0.1717	7.2622	0.0560	$2.182 \times 10^{-3}$	$3.946 \times 10^{-2}$
0.2002	6.2289	0.0587	$2.615 \times 10^{-3}$	$4.054 \times 10^{-2}$
0.2444	5.1025	0.0616	$2.534 \times 10^{-3}$	$3.294 \times 10^{-2}$
0.3160	3.9466	0.0662	$4.023 \times 10^{-3}$	$4.169 \times 10^{-2}$
0.4034	3.0911	0.0695	$3.811 \times 10^{-3}$	$3.072 \times 10^{-2}$
0.5180	2.4073	0.0737	$6.109 \times 10^{-3}$	$3.847 \times 10^{-2}$
0.6661	1.8721	0.0783	$8.690 \times 10^{-3}$	$4.259 \times 10^{-2}$
0.8561	1.4566	0.0841	$1.395 \times 10^{-2}$	$5.318 \times 10^{-2}$
1.0907	1.1433	0.0913	$2.282 \times 10^{-2}$	$6.799 \times 10^{-2}$
1.3951	0.8938	0.1001	$3.532 \times 10^{-2}$	$8.241 \times 10^{-2}$
1.7836	0.6991	0.1102	$5.174 \times 10^{-2}$	$9.441 \times 10^{-2}$
2.2792	0.5471	0.1232	$8.547 \times 10^{-2}$	$1.220 \times 10^{-1}$
2.9121	0.4282	0.1405	$1.457 \times 10^{-1}$	$1.628 \times 10^{-1}$
3.7171	0.3355	0.1638	$2.514 \times 10^{-1}$	$2.199 \times 10^{-1}$



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**Tabular Report**

Pressure (MPa)	Pore Diameter ( $\mu\text{m}$ )	Cumulative Pore Volume (mL/g)	dV/dD Pore Volume (mL/g/ $\mu\text{m}$ )	dV/dlogD Pore Volume (mL/g)
4.7462	0.2627	0.1934	$4.068 \times 10^{-1}$	$2.788 \times 10^{-1}$
6.0646	0.2056	0.2280	$6.061 \times 10^{-1}$	$3.252 \times 10^{-1}$
7.7430	0.1611	0.2647	$8.228 \times 10^{-1}$	$3.456 \times 10^{-1}$
9.8736	0.1263	0.3024	$1.085 \times 10^0$	$3.572 \times 10^{-1}$
12.6047	0.0989	0.3405	$1.391 \times 10^0$	$3.590 \times 10^{-1}$
16.0882	0.0775	0.3795	$1.825 \times 10^0$	$3.688 \times 10^{-1}$
20.5245	0.0608	0.4182	$2.305 \times 10^0$	$3.651 \times 10^{-1}$
26.1853	0.0476	0.4560	$2.878 \times 10^0$	$3.574 \times 10^{-1}$
33.4320	0.0373	0.4903	$3.324 \times 10^0$	$3.233 \times 10^{-1}$
42.6595	0.0292	0.5197	$3.652 \times 10^0$	$2.783 \times 10^{-1}$
54.4507	0.0229	0.5446	$3.925 \times 10^0$	$2.344 \times 10^{-1}$
69.4922	0.0179	0.5652	$4.154 \times 10^0$	$1.944 \times 10^{-1}$
88.6868	0.0141	0.5822	$4.377 \times 10^0$	$1.605 \times 10^{-1}$
113.1751	0.0110	0.5965	$4.713 \times 10^0$	$1.354 \times 10^{-1}$
144.4253	0.0086	0.6086	$5.069 \times 10^0$	$1.141 \times 10^{-1}$
184.3321	0.0068	0.6184	$5.262 \times 10^0$	$9.283 \times 10^{-2}$
219.9840	0.0057	0.6236	$4.738 \times 10^0$	$6.765 \times 10^{-2}$
187.0261	0.0067	0.6244	$-7.805 \times 10^{-1}$	$-1.106 \times 10^{-2}$
147.7293	0.0084	0.6244	$0.000 \times 10^0$	$0.000 \times 10^0$
116.6469	0.0107	0.6244	$0.000 \times 10^0$	$0.000 \times 10^0$
92.1011	0.0135	0.6244	$0.000 \times 10^0$	$0.000 \times 10^0$
72.7069	0.0172	0.6244	$0.000 \times 10^0$	$0.000 \times 10^0$
57.4200	0.0217	0.6244	$0.000 \times 10^0$	$0.000 \times 10^0$
45.3584	0.0275	0.6227	$2.957 \times 10^{-1}$	$1.668 \times 10^{-2}$
35.7702	0.0349	0.6188	$5.262 \times 10^{-1}$	$3.760 \times 10^{-2}$
28.2608	0.0441	0.6134	$5.848 \times 10^{-1}$	$5.293 \times 10^{-2}$
22.3241	0.0559	0.6063	$6.041 \times 10^{-1}$	$6.922 \times 10^{-2}$
17.6295	0.0707	0.5973	$6.032 \times 10^{-1}$	$8.750 \times 10^{-2}$
13.8940	0.0898	0.5867	$5.617 \times 10^{-1}$	$1.033 \times 10^{-1}$
10.9734	0.1136	0.5739	$5.357 \times 10^{-1}$	$1.249 \times 10^{-1}$
8.6719	0.1438	0.5593	$4.838 \times 10^{-1}$	$1.427 \times 10^{-1}$
6.8539	0.1819	0.5434	$4.159 \times 10^{-1}$	$1.553 \times 10^{-1}$
5.4156	0.2303	0.5263	$3.539 \times 10^{-1}$	$1.672 \times 10^{-1}$
4.2853	0.2910	0.5090	$2.847 \times 10^{-1}$	$1.701 \times 10^{-1}$



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3.3716	0.3699	0.4922	$2.130 \times 10^{-1}$	$1.613 \times 10^{-1}$
2.6649	0.4679	0.4767	$1.586 \times 10^{-1}$	$1.523 \times 10^{-1}$
2.1105	0.5909	0.4621	$1.188 \times 10^{-1}$	$1.442 \times 10^{-1}$
1.6637	0.7496	0.4484	$8.603 \times 10^{-2}$	$1.321 \times 10^{-1}$
1.3153	0.9481	0.4356	$6.477 \times 10^{-2}$	$1.260 \times 10^{-1}$
1.0418	1.1969	0.4230	$5.035 \times 10^{-2}$	$1.238 \times 10^{-1}$
0.8278	1.5065	0.4108	$3.939 \times 10^{-2}$	$1.221 \times 10^{-1}$
0.6516	1.9139	0.3987	$2.987 \times 10^{-2}$	$1.171 \times 10^{-1}$
0.5148	2.4225	0.3868	$2.328 \times 10^{-2}$	$1.157 \times 10^{-1}$
0.4048	3.0808	0.3759	$1.662 \times 10^{-2}$	$1.048 \times 10^{-1}$
0.3262	3.8227	0.3661	$1.316 \times 10^{-2}$	$1.042 \times 10^{-1}$
0.2590	4.8142	0.3572	$8.971 \times 10^{-3}$	$8.882 \times 10^{-2}$
0.3080	4.0491	0.3562	$-1.329 \times 10^{-3}$	$-1.353 \times 10^{-2}$
0.3956	3.1525	0.3562	$0.000 \times 10^0$	$0.000 \times 10^0$
0.4937	2.5260	0.3562	$0.000 \times 10^0$	$0.000 \times 10^0$
0.6296	1.9808	0.3565	$5.537 \times 10^{-4}$	$2.859 \times 10^{-3}$
0.8107	1.5382	0.3571	$1.306 \times 10^{-3}$	$5.262 \times 10^{-3}$
1.0235	1.2183	0.3580	$2.796 \times 10^{-3}$	$8.834 \times 10^{-3}$
1.2991	0.9599	0.3595	$6.059 \times 10^{-3}$	$1.512 \times 10^{-2}$
1.6476	0.7569	0.3620	$1.230 \times 10^{-2}$	$2.419 \times 10^{-2}$
2.0905	0.5965	0.3660	$2.440 \times 10^{-2}$	$3.784 \times 10^{-2}$
2.6475	0.4710	0.3718	$4.666 \times 10^{-2}$	$5.708 \times 10^{-2}$
3.3565	0.3715	0.3798	$8.001 \times 10^{-2}$	$7.725 \times 10^{-2}$
4.2510	0.2933	0.3898	$1.282 \times 10^{-1}$	$9.769 \times 10^{-2}$
5.3939	0.2312	0.4012	$1.842 \times 10^{-1}$	$1.107 \times 10^{-1}$
6.8229	0.1828	0.4138	$2.585 \times 10^{-1}$	$1.226 \times 10^{-1}$
8.6548	0.1441	0.4277	$3.612 \times 10^{-1}$	$1.353 \times 10^{-1}$
10.9591	0.1138	0.4438	$5.292 \times 10^{-1}$	$1.564 \times 10^{-1}$
13.8863	0.0898	0.4624	$7.774 \times 10^{-1}$	$1.814 \times 10^{-1}$
17.5886	0.0709	0.4832	$1.101 \times 10^0$	$2.028 \times 10^{-1}$
22.2812	0.0560	0.5062	$1.539 \times 10^0$	$2.237 \times 10^{-1}$
28.2234	0.0442	0.5295	$1.973 \times 10^0$	$2.265 \times 10^{-1}$
35.7531	0.0349	0.5510	$2.320 \times 10^0$	$2.102 \times 10^{-1}$
45.2875	0.0275	0.5699	$2.567 \times 10^0$	$1.836 \times 10^{-1}$



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57.3709	0.0217	0.5856	$2.708 \times 10^0$	$1.529 \times 10^{-1}$
72.6670	0.0172	0.5977	$2.638 \times 10^0$	$1.176 \times 10^{-1}$
92.0441	0.0135	0.6072	$2.638 \times 10^0$	$9.283 \times 10^{-2}$
116.6052	0.0107	0.6143	$2.483 \times 10^0$	$6.897 \times 10^{-2}$
147.7143	0.0084	0.6195	$2.320 \times 10^0$	$5.087 \times 10^{-2}$
187.1220	0.0067	0.6227	$1.800 \times 10^0$	$3.116 \times 10^{-2}$
219.9793	0.0057	0.6242	$1.457 \times 10^0$	$2.064 \times 10^{-2}$



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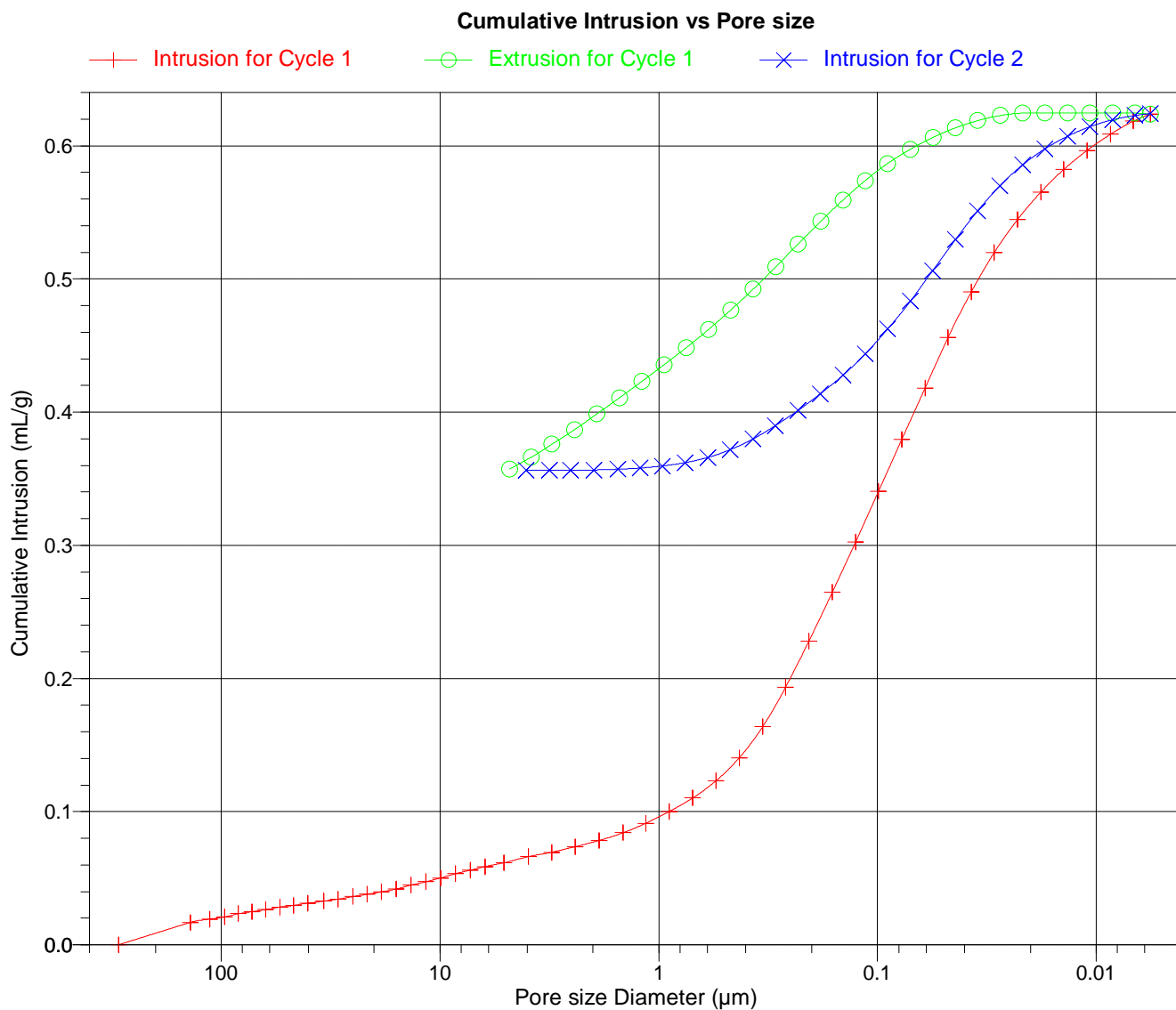
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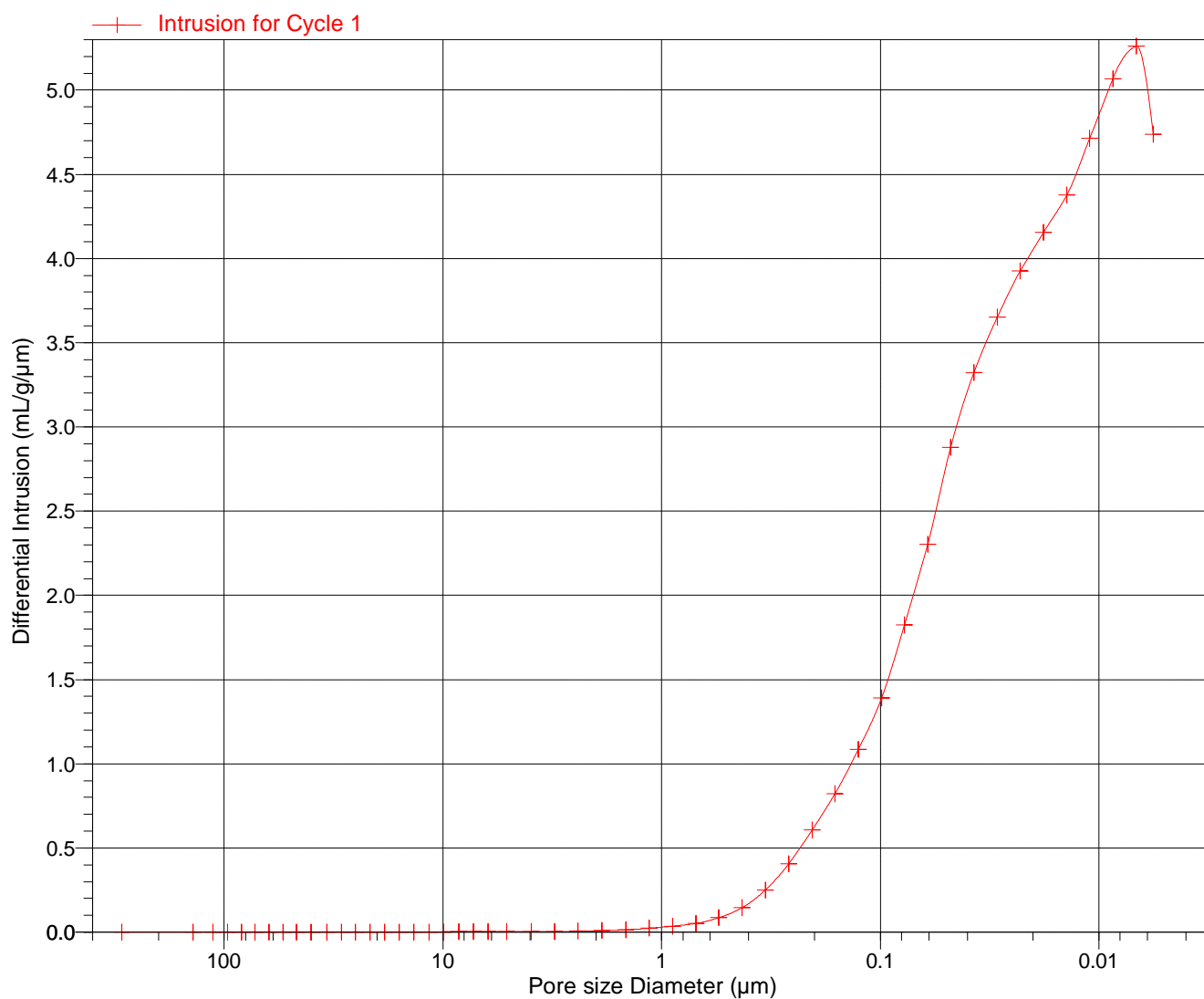
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### Differential Intrusion vs Pore size





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### Log Differential Intrusion vs Pore size

