

LIGO E-Document Number: **E1000179-v1**

Sample Test:

Material under test:		Semitron Esd 480 PEEK from Boedeker Plastics		
units		2036.28625	cm ²	
absorption	-0.0189 ±	0.176836847	ppm/yr	1 sigma
scatter	-8.19381 ±	5.318280014	ppm/yr	1 sigma
max. normalized absorption		1.64E-04	ppm/yr/unit	2 sigma
max. normalized scatter		1.20E-03	ppm/yr/unit	2 sigma
test turbopump speed (liter/s)		16.81338596	torr/liter/sec	

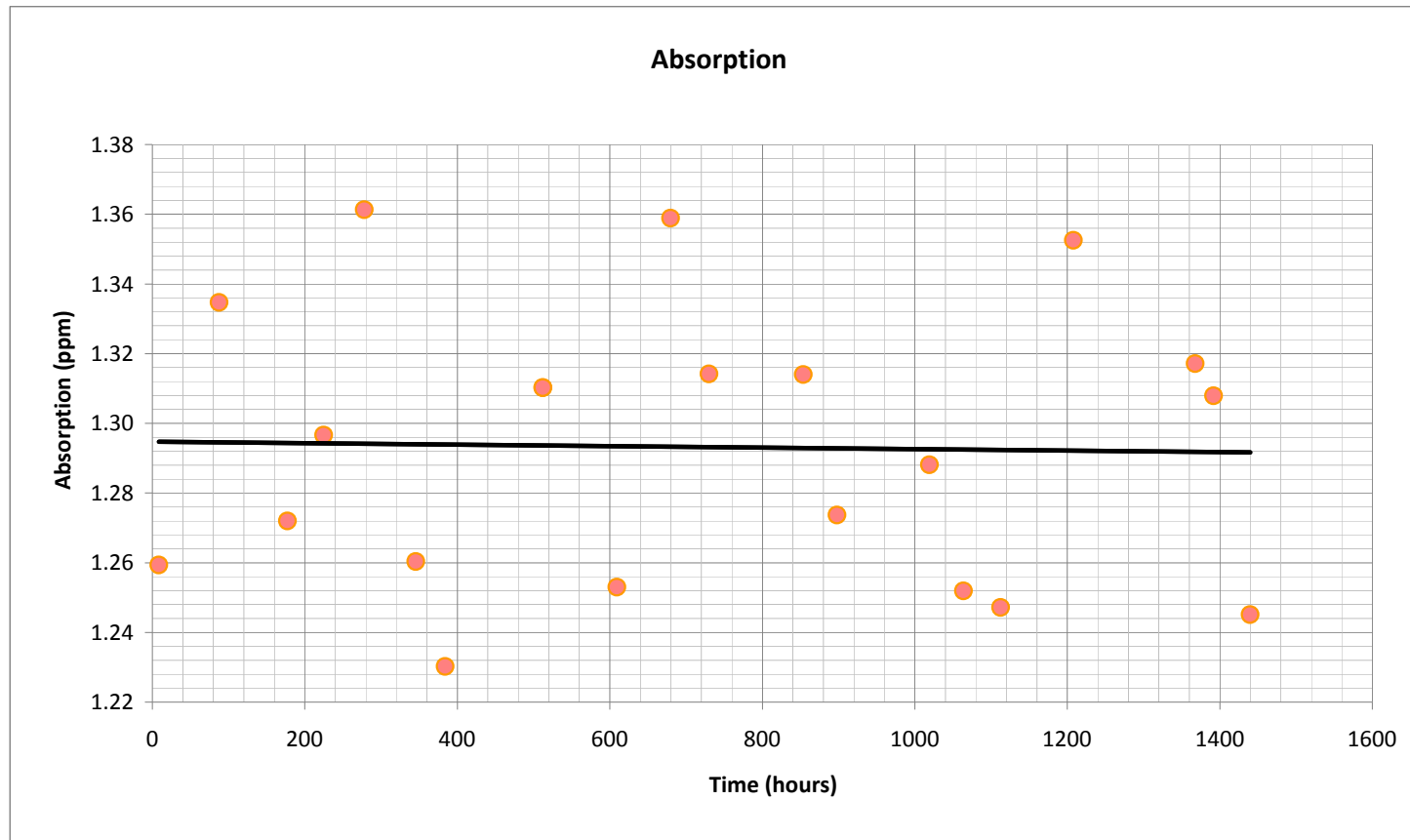
Scaled to LIGO:

LIGO Vacuum Volume	Vertex	LHO Diagonal	End	Comments
Quantity (units)	7891	7891	315.64	see E1000042 for A-OSEM counts; HOW MUCH Esd 480 PEEK per A-OSEM
LIGO ion pumping speed (liter/s)	6800	6800	1700	see E0900398 or PSI V049-1-078 for pump rates
pumping speed ratio (test/LIGO)	0.0025	0.0025	0.0099	does not include cryo-pump and effective pumping from the Beam Tube
max. absorption (ppm/yr)	0.003	0.003	0.001	* Limit is < 0.02 ppm/yr for a single source
max. scatter (ppm/yr)	0.023	0.023	0.004	* Limit is < 0.2 ppm/yr for a single source

* The overall limit on contamination loss on optics for AdL is < 0.5 ppm/yr absorption and < 4 ppm/yr scatter from all sources, per Table 4 of the COC Design Requirements Document (T000127-v1). It is assumed that ~20 sources could contribute.

Test Material/Assy./Device: **Semitron Esd 480 PEEK from Boedeker Plastics**

Absorption fitting			
Slope	-2.15757E-06	1.294770782	Y-intercept
Standard Error	2.01869E-05	0.016839696	Standard error
r_2	0.000600865	0.040535531	sey
F	0.011423295	19	d_f
ss_{reg}	1.877E-05	0.031219457	ss_{resid}
Absorption change rate (ppm/yr)		\pm sigma (ppm/yr)	
-0.02		0.18	



Test Material/Assy./Device: **Semitron Esd 480 PEEK from Boedeker Plastics**

Total loss fitting			
Slope	-0.000935366	139.6608385	Y-intercept
Standard Error	0.00060711	0.506445463	Standard error
r_2	0.11105784	1.219085897	sey
F	2.373719082	19	d_f
ss_{reg}	3.527751095	28.23723806	ss_{resid}
Total loss change rate (ppm/yr)		\pm sigma (ppm/yr)	
-8.2		5.3	

