

Vacuum vessel - outgassing

	material	surface area (cm ²)	est. outgassing rate (torr-L-sec ⁻¹ -cm ⁻²)	est. gas load (torr-L-sec ⁻¹)	references
pixel vessel wall (dirty side)	aluminum	40802	1.00E-10	4.08E-06	1
silicon sensor/ROC ass'y plane (coupon)	silicon, indium or lead-tin bump bond fuzzy carbon	17548 21806	4.00E-09	7.02E-05	1 - for Pyrex
plane support structure	carbon fiber	83871	7.50E-08	6.29E-03	2 - for carbon fiber
cooling manifold	glassy c.f.	6161	7.50E-08	4.62E-04	2 - for carbon fiber
coupon to main cooling	plastic	3290	2.90E-07	9.54E-04	3 - for PEEK
wire bonds	aluminum		1.00E-10		1
HDI	kapton	74193	7.50E-08	5.57E-03	2
Circuit boards	G-10+elec cmpts	21161	1.00E-08	2.12E-04	4
RF shielding	aluminum	34000	1.00E-10	3.40E-06	1

302834

Total gas load

1.36E-02

References for surface area and material:

- see email from A. Tourkhtarov 29 March 2001
- see file ppdserver2/tc.ppd/users/saustin/BTeV

References

1. Roth, A. *Vacuum Technology*. Elsevier Science Publishers. 1982.
2. Ferro-Luzzi, M. Meeting notes from LHCb Week, CERN, May 2000.
3. The PEEK Project: sclair.home.cern.ch/sclair/Tube-outgassing.htm
4. Andersen, T. Email dated 9 April 2001