

CIT Vacuum Bake Oven Pumping Rate

Note: Applies to all 4 VBOs (B, C, D and F)

Value	Units	Parameter	Source
1.38E-23	m ² kg/s ²	kb, Boltzmann constant	
22	C	T, Temp[erature	
295.15	K	T, Temp[erature	
0.028966	kg/mol	M, molar mass	
6.02E+23	--	Na, Avogadro's number	
4.81E-26	kg	m, molecular mass	
464.4719	m/s	v, mean velocity (used for conductance calc)	
411.6275	m/s	vp, most probable speed	
504.1386	m/s	vrms, rms speed	
2.37	in	d, diameter	4.5" CF, 2.5" OD, .065" wall
0.060198	m	d, diameter	
16.23	in	L, length	cold trap plus elbow
0.412242	m	L, length	
75.80592	liter/s	C, pipe conductance	GEM TN-93-382
64.34606	liter/s	C, pipe conductance	O'Hanlon, 2nd ed., eqn. 3.22
1.00E+02	liter/sec	C, right angle valve	4.5" CF Chemraz valve
2.50E+02	liter/sec	Stp, turbopump speed	Agilent NAV V301 turbo
3.68E+01	liter/s	S, pump speed	effective pump rate