

Appendix 6 – Outgassing tables for various materials

Reference site: http://home.fnal.gov/~mlwong/outgas_rev.htm

Outgassing rates of aluminium

Note the different methods of measurement and treatment of samples.

Material	Treatment	Outgassing rate (torr-L/sec-cm ²)	Time (hours)	Test method	Reference	Year
Aluminium	None	1×10^{-6}	1h		Schmaus (ref Markley, et al)	1999
Aluminium	Degassed	1.7×10^{-7}	1h		Schmaus (ref Markley, et al)	1999
Aluminium	Degassed	2.7×10^{-8}	10h		Schmaus (ref Markley, et al)	1999
Aluminium 6061-T6	Baked 13.5h @ 300°C	1.4×10^{-8}	10h		Schmaus (ref Das)	1999
Aluminium	Cleaned	8×10^{-9}	10h		Schmaus (ref Blears, et al)	1999
Aluminium	Fresh, degreased w/ trichloroethylene & cleaned w/ ethyl alcohol	6.3×10^{-9}	1h	conductance	Elsley (ref Schram)	1975 (1963)
Aluminium	Degassed	4.6×10^{-9}	100h		Schmaus (ref Markley, et al)	1999
Aluminium 6061-T6	Baked @ 200°C	4.5×10^{-9}	10h		Schmaus (ref Das)	1999
Aluminium	Degassed 24h, degreased w/ trichloroethylene & cleaned w/ ethyl alcohol	4.14×10^{-9}	1h	conductance	Elsley (ref Schram)	1975 (1963)
Aluminium 6061-T6	None	2.5×10^{-9}	10h		Schmaus (ref Das)	1999
Aluminium 5083-O	Bell jar, as received, room temp.	2.18×10^{-9}	10.3h	Rate-of-rise	Schrank, et al	1964
Aluminium 5083-O	Bell jar, as received, room temp.	1.27×10^{-9}	8h	Conductance	Schrank, et al	1964
Aluminium 5083-O	Bell jar, as received, room temp.	6.6×10^{-10}	24h	Conductance	Schrank, et al	1964
Aluminium 5083-O	Bell jar, as received, room temp. after baking @ 220°C	4.6×10^{-10}	50h (baked @27-31h)	Conductance	Schrank, et al	1964
Aluminium 6061-T6	Baked 15h @ 300°C	1.6×10^{-10}	10h		Schmaus (ref Das)	1999
Aluminium	Degassed 24h, degreased w/ trichloroethylene & cleaned w/ ethyl alcohol	3.06×10^{-10}	1h	conductance	Elsley (ref Schram)	1975 (1963)
Aluminium 5083-O	Bell jar, no. 4 finish (lapped), room temp.	2.87×10^{-10}	6.0h	Rate-of-rise	Schrank, et al	1964
Aluminium	Fresh, degreased w/ trichloroethylene & cleaned w/ ethyl alcohol	6.0×10^{-10}	10h	conductance	Elsley (ref Schram)	1975 (1963)
Aluminium, type 1100	Cleaned w/ detergent, rinsed w/ acetone, pumped 24 hours	$\sim 10^{-10}$	0	conductance	Young	1968
Aluminium	LEP vacuum chamber, chem.. clean, baked in situ @ 150°C	2.3×10^{-11}	24h		Mathewson, et al	1988
Aluminium 6061-T4	Degreased in acetone w/ methanol rinse; baked 100°C	6×10^{-12}	24h	Rate-of-rise & conductance	Halama, Herrera	1976