

Vacuum Technology 60B
Permeation Rates for Common Vacuum Materials

Material	Permeation Rate	
	sq-cm/sec	sq-meter/sec
Buna-N (high value for CO2)	4.80E-07	4.80E-11
Buna-N (High value for Helium)	6.00E-08	6.00E-12
Buna-N (High value for Nitrogen)	2.00E-08	2.00E-12
Buna-N (high value for Oxygen)	6.00E-08	6.00E-12
Buna-N (low value for CO2)	5.70E-08	5.70E-12
Buna-N (low value for Helium)	5.20E-08	5.20E-12
Buna-N (low value for Nitrogen)	2.00E-09	2.00E-13
Buna-N (low value for Oxygen)	7.00E-09	7.00E-13
Buna-N (water)	7.60E-06	7.60E-10
Butyl (CO2 high value)	5.20E-08	5.20E-12
Butyl (CO2 low value)	4.00E-08	4.00E-12
Butyl (Helium high value)	8.00E-08	8.00E-12
Butyl (Helium low value)	5.20E-08	5.20E-12
Butyl (Hydrogen)	4.50E-08	4.50E-12
Butyl (nitrogen high value)	3.50E-09	3.50E-13
Butyl (nitrogen low value)	2.40E-09	2.40E-13
Butyl (Oxygen high value)	1.30E-08	1.30E-12
Butyl (oxygen low value)	1.00E-08	1.00E-12
Butyl (water high value)	1.50E-06	1.50E-10
Butyl (water low value)	3.00E-07	3.00E-11
Polyethylene (Argon)	2.50E-08	2.50E-12
Polyethylene (Helium)	5.30E-08	5.30E-12
Polyethylene (Hydrogen)	7.50E-08	7.50E-12
Polyethylene (Nitrogen)	9.00E-09	9.00E-13
Polyethylene (Oxygen)	2.70E-08	2.70E-12
Rubber (natural 337 Argon)	1.50E-07	1.50E-11
Rubber (natural 337 Helium)	2.20E-07	2.20E-11
Rubber (natural 337 Hydrogen)	3.40E-07	3.40E-11
Rubber (natural 337 Nitrogen)	5.30E-08	5.30E-12
Rubber (natural 337 Oxygen)	2.00E-07	2.00E-11
Silicone (CO2 high value)	2.30E-05	2.30E-09
Silicone (CO2 low value)	4.60E-06	4.60E-10
Silicone (Oxygen high value)	4.60E-06	4.60E-10
Silicone (oxygen low value)	7.60E-07	7.60E-11
Silicone (water)	8.00E-05	8.00E-09
Teflon (CO2)	1.20E-09	1.20E-13
Teflon (nitrogen)	1.40E-09	1.40E-13
Teflon (oxygen)	4.00E-10	4.00E-14
Teflon (water)	2.70E-07	2.70E-11
Viton (high value for CO2)	6.00E-08	6.00E-12
Viton (high value for helium)	1.60E-07	1.60E-11
Viton (high value for nitrogen)	3.00E-09	3.00E-13
Viton (high value for oxygen)	1.10E-08	1.10E-12
Viton (low value for CO2)	5.80E-08	5.80E-12
Viton (low value for helium)	9.00E-08	9.00E-12
Viton (low value for nitrogen)	5.00E-10	5.00E-14
Viton (low value for oxygen)	1.00E-08	1.00E-12
Viton (water)	4.00E-07	4.00E-11