

Gas Permeability

15th June 2021

To Whom It May Concern:

In contrast to other elastomers the gas permeability of Silicones is very high. In fact, permeability is 30 times that of natural rubber and 400 times that of Butyl rubber.

Although an obvious disadvantage in seals or gas containers, Silicones find plenty of uses where gas permeability is an advantage i.e., contact lenses, fabric coatings and breathable medical applications.

Whilst all Silicones are permeable to gasses, the phenyl grads (PVMQ) exhibit slightly lower gas permeability than standard VMQ grades.

See chart below:

GAS TRANSMISSION RATE ASTM D1418

Silicone Type	Air	Nitrogen	Oxygen	Hydrogen	Carbon Dioxide	Helium
VQM	0.382	0.307	0.660	0.729	3.87	0.436
PVMQ	0.272	0.231	0.492	0.551	2.59	-----