

Viton® Consists of Four Families of Polymers

Viton® Family	Product Types	Principal End Users	Polymer Composition	Weight% Fluorine
A	A, AL	General purpose sealing: Automotive, Aerospace fuels & lubricants	Dipolymers of VF2/HFP	~67%
B	B, BL, GBL-S*	Chemical Process plant, Power Utility Seals & Gaskets	Terpolymers of VF2/HFP/TFE	~68%
F	F, GF-S	Oxygenated Automotive fuels. Concentrated aqueous inorganic acids, water, steam	Terpolymers of VF2/HFP/TFE	~69%
Viton® Extreme™	TBR-S, ETP-S	Automotive & Off-Road - High pH lubricants, greases, & Coolants. Oil Exploration/Production - Drilling Muds, Sour Wells. Special sealing requirements - solvents, coatings, ultra harsh environments (ETP)	Copolymers of TFE/Propylene and Ethylene/TFE/PMVE	~60-65%

*The new types of Viton® made with Advanced Polymer Architecture (APA) are indicated by an 'S'.

The four families differ primarily in the end-use performance of parts made from Viton®. Each family differs in its ability to: resist permeation and volume increase, resist attack and property degradation caused by the chemicals and fluids.

Speciality versions of A,B & F types are available in which HFP is replaced with a speciality monomer to improve low temperature flexibility. These are called LT types, for example, GLT-S, GBLT-S, and GFLT-S, and they perform like the A, B, and F families, respectively.

The choice of the most appropriate "family" of Viton to use for any given end-use application will be determined by the end-use service, and in particular, whether the finished part must provide:

- Resistance to amines or caustics
- Resistance to hydrocarbon fluids
- Flexibility at low temperature (ability to maintain a seal at low temperature)

The end-use performance capability of the various families of Viton differ primarily in terms of these three factors.

End-use service differences between Types of Viton®

Standard and Speciality Types	Low Temp. Flexibility TR-10, °C	Compression Set, O-rings 70 h/200°C, %	Fluid Resistance				Base Resistance	
			% Volume Increase after 168 h				% loss of elongation at break	
			Toluene at 40°C	Fuel C/MeOH (85/15) at 23°C	Methanol at 23°C	Concentrated H ₂ SO ₄ at 70°C	33% solution of KOH 336h/40°C	ASTM Ref. Oil 105 500h/150°C
AL	-19	20-25	20-25	35-40	85-95	12-15	-50	-80
A	-17	12-17	20-25	35-40	85-95	10-12	-45	-80
BL, GBL-S	-15	25-40	12-15	20-25	25-35	3-5	-25	-65
B	-13	25-30	12-15	18-23	25-35	8-10	-25	-70
ETP-S	-11	45-50	6-8	8-10	1-2	4-6	0	-10
GFLT-S	-24	35-40	8-12	10-15	3-5	3-5	-30	-40
GBLT-S	-26	35-40	12-15	27-32	25-35	3-5	-40	-50
F	-8	30-45	8-12	5-10	3-5	7-9	-50	-55
GF-S	-8	30-45	8-12	5-10	3-5	7-9	-45	-50
TBR-S	+3	45-50	60-65	80-90	-	3-5	-10	-20

