Selecting the Correct Type of Viton®

Types of Viton / FKM Polymers and some of their Important Characteristics

The designations (i.e. A, B, GF, and GLT) were established by DuPont Dow Elastomers many years ago and have become standard reference points. Other fluorocarbon polymer suppliers may use different designations.

A or E type – The most common elastomers in the FKM product line. They generally have 66% fluorine content and are supplied to the most common aerospace specifications. These grades are considered general purpose FKMs. They exhibit low compression set, but are not resistant to flex fuels with high levels of alcohol or MBTE.

B type – These have increased fluorine content and offer better fluid resistance to acids and flex fuels than the A or E types. They generally have 67% fluorine content and are commonly used in applications where resistance to flex fuels containing alcohol or MTBE in required.

GF or F type – These have further increases in fluorine content to provide better fuel and solvent resistance. They generally have 70% fluorine content and are used in flex fuel and agricultural applications where a variety of very aggressive chemicals are routinely used.

GLT type – These have been developed to improve the low temperature flexibility compared with A or E types. The low temperature flexibility normally reaches –40° F. They generally have 65% fluorine content and are not suitable for flex fuels or aggressive solvents.

GFLT type – Developed to balance fluid resistance with improved low temperature flexibility. They generally have 68% fluorine content and are rated to –35° F. These materials are suitable for flex fuel applications.

Viton® Extreme – This is sometimes referred to as "ETP". These materials generally have 73.5% fluorine, and offer improved resistance to aggressive solvents.

Differences in Fluids Resistance and Low Temperature

Environment	Family and Type of Viton Fluoroelastomer							
	A	B	F	GB	GF	GLT	GFLT	ETP
	Cure System							
	Bisphenol			Peroxide				
Aliphatic Hydrocarbons, process fluids, chemicals	1	1	1	1	1	1	1	1
Aromatic hydrocarbons (toluene, etc.), process fluids, chemicals	2	1	1	1	1	2	1	1
Automotive and Aviation Fuels (pure hydrocarbons - no alcohol)	1	1	1	1	1	1	1	1
Automotive fuels containing legal levels (5-15%) of alcohols and ethers (methanol, ethanol, MTBE, TAME)	2	1	1	1	1	2	1	1
Automotive/methanol fuels blends up to 100% methanol (flex fuels)	NR	2	1	2	1	NR	1	1
Engine Lubricating Oils (SE-SF grades)	2	1	1	1	1	1	1	1
Engine Lubricating Oils (SG-SH grades)	3	2	2	1	1	1	1	1
Acid (H_2SO_4, HNO_3) hot water and steam	3	2	2	1	1	1	1	1
Strong base, high pH, caustic, amines	NR	NR	NR	NR	NR	NR	NR	1-2
Low molecular weight carbonyls - 100% concentration (MTBE, MEK, MIBK, etc)	NR	NR	NR	NR	NR	NR	NR	1-2
Temperature of retraction (TR-10)	-17°C	-14°C	-7°C	-15°C	-6°C	-30°C	-24°C	-11°C

1 = excellent, minimal volume swell
2 = Very Good, small volume swell
3 Good, moderate volume swell
NR = Not Recommended, excessive volume swell or change in physical properties

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