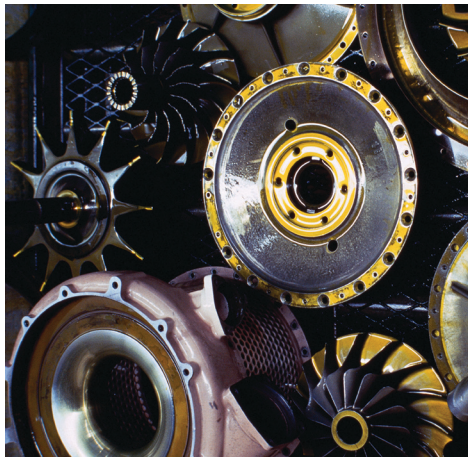
VG286-80

Low Temperature FKM Sealing (-40°C) and Excellent Fuel Compatibility



Low Temperature FKM:

Parker strives to provide not only sealing solutions but innovative products to our customers. We are continuously searching for the next great need in every industry. After much review, we are pleased to present our latest innovative fluorocarbon material, VG286-80.

VG286-80 provides improved low temperature sealing performance while maintaining chemical compatibility and high temperature sealing function. Ordinarily when a low temperature performance FKM is enhanced, the fuel compatibility of the compound falters. Parker's VG286-80 was developed to seal in temperatures as low as -47°F (-44°C), sustaining excellent compatibility in fuels while also performing in temperatures as high as 400°F (205°C).

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Product Features:

- True -40°C sealing compound
- 80 durometer compound
- Wide temperature sealing range (-47° to 400°F)/(-44° to 205°C)
- Improved fuel compatibility compared to VM835-85 (GLT like compound)
- Excellent biodiesel compatibility
- Wide chemical compatibility
- Recommended for Automotive, Oil and Gas, Aerospace and General Industry applications

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Material Test Report Comparison			
Original Physical Properties	Test method	VG286-80 Test results	VM835-75 Test results
Hardness, shore A, pts.	ASTM D2240	85	79
Tensile strength, psi	ASTM D412	2881	2662
Ultimate elongation, %, min.	ASTM D412	142	192
Modulus @ 100% elongation, psi	ASTM D412	1909	1213
Compression Set 70 hrs. @ 175°C (2-214)			
Percent of original deflection, max	ASTM D395 Method B	15	15
Compression Set 168 hrs. @ 175°C (2-214)			
Percent of original deflection, max	ASTM D395 Method B	24	19
Dry Heat Resistance, 70 hrs. @ 121°C (250°F)			
Hardness change, pts.	ASTM D573	0	+3
Tensile strength change, %		-28	-16
Elongation change, %		+27	+14
Fluid Immersion ARM-300, 336 hrs. @ 200°C			
Hardness change, pts.	ASTM D471	-8	-11
Tensile strength change, %		-9	-7
Ultimate elongation change, %		+20	+13
Volume change, %		+11	+17
Fluid Immersion Methanol, 24 hrs. @ RT			
Hardness change, pts.	ASTM D471	-9	-17
Tensile strength change, %		-39	-63
Ultimate elongation change, %		-13	-44
Volume change, %		+16	+77
Fluid Immersion Fuel C, 70 hrs. @40°C			
Hardness change, pts.	ASTM D471	-8	-7
Tensile strength change, %		-27	-23
Ultimate elongation change, %		-6	-5
Volume change, %		+13	+12
Fluid Immersion Fuel CE20, 70 hrs. @ 40°C			
Hardness change, pts.	ASTM D471	-10	-9
Tensile strength change, %		-34	-41
Ultimate elongation change, %		-14	-18
Volume change, %		+20	+23
Fluid Immersion Biodiesel + 1% H_20, 168 hrs. @ 125°C			
Hardness change, pts.	ASTM D471	-4	-9
Tensile strength change, %		-14	-8
Ultimate elongation change, %		+7	+33
Volume change, %		+5	+28
Low Temperature			
TR-10, °C	ASTM D1329	-36	-30

The unique characteristics of this FKM elastomer allows VG286-80 to meet many of the demanding requirements found in such industries as Oil and Gas, Automotive and Aerospace. For more information on this innovative material, please contact a Parker O-Ring Division Applications Engineer by calling 859-335-5101 or e-mail at ordmail-box@parker.com.

Fuel Compatibility

The technical data to the left compares Parker's VG286-80 FKM material to Parker's VM835-75, a GLT type compound. The fuel compatibility of VG286-80 is greatly enhanced compared to that of VM835-75. Test results show that the VG286-80 compound swells 60% less than the VM835-75 material in methanol at room temperature. It also demonstrates improved fuel performance in biodiesel where VG286-80 swells 20% less than VM835-75.

Low Temperature Performance

When the temperature drops below the recommended performance window of an elastomer, the resiliency of the compound is reduced, resulting in a possible leak in the application. TR-10 is a common method used to measure the resiliency of a material at low temperatures. The TR-10 value of a compound can be determined by conducting an ASTM D2137 procedure where a sample of the material is stretched and then frozen. The temperature is then gradually warmed until the sample retracts 10% of the stretched state. The temperature at which this retraction occurs is the TR-10 value of the elastomer. VG286-80 has a TR-10 of -33°F (-36°C) while the TR-10 of VM835-75 is -22°F (-30°C). The lower the TR-10 of a material, the better resiliency it has at the lower temperature. This results in improved low temperature sealing performance.

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