SIMRIZ® 501 AND SIMRIZ® Z7257 PREMIUM AEROSPACE

Simriz® 501 compound is formulated to far exceed the requirements of AMS7257, resisting high temperatures up to 325°C and a broad range of harsh chemical environments including:

- Strong inorganic and organic acids
- Steam and water
- MIL-PRF-23699 HTS turbine lubricants after these lubricants start to degrade

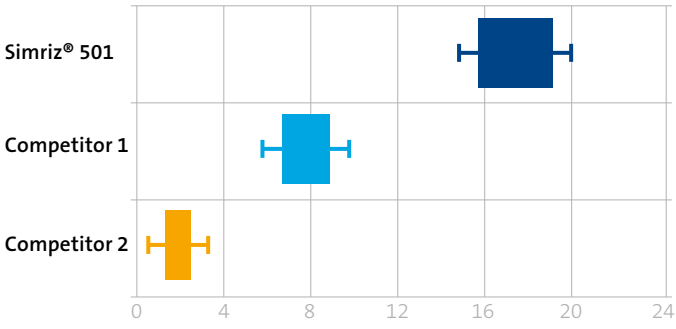
With even greater performance results than the well-known Simriz® Z7257, Simriz® 501 marks our next generation Aerospace Simriz® material while providing continued availability of Simriz® Z7257.

Both materials resist splitting at high squeeze under high temperatures where most competitive products rupture under these conditions.

Simriz® 501 success standards include:

- Extensive testing beyond the requirements of AMS7257
- Out-performs competitive materials in O-ring compressive stress relaxation compared to all competitive materials based on customer testing
- Extensive flight testing in high temperature aerospace applications

O-ring life: Flight hours at 300 °C/572 °F (continuous)



VALUES FOR THE CUSTOMER

- Without equal. Patented cross-linking system provides superior performance beyond the limits of every other competitor FFKM product
- Demonstrated performance. Successfully used in many customer applications
- Vertically integrated. Freudenberg Sealing Technologies is the only vertically integrated O-ring manufacturer in the world
- Cost efficient. As the only vertically integrated O-ring manufacturer down to the monomers Freudenberg Sealing Technologies is able to provide the most cost efficient FFKM O-rings

TYPICAL APPLICATIONS

- Bleed Air Management Systems
- Gas Turbine Lubrication Systems
- High Temperature Propulsion Units
- Control Devices utilizing strong oxidizers

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FEATURES AND BENEFITS

- Demonstrated performance advantages compared to competitive products, including extensive flight testing
- Produced in first NADCAP certified production
- Demonstrated performance in a variety of Aerospace applications

Comparison AMS7257 materials on QPL		AMS7257D	Z7257	SZ501
Ring - 214	**default**			
Original Properties	**Method**			
Specific Gravity	ASTM D297	X +/-0.02	2.02	2.04
Hardness, Shore A (plied sheet)	ASTM D2240	75 +/-5	79	77
Tensile Strength, psi	ASTM D1414	1500 min	1949	1971
Elongation, %	ASTM D1414	120 min	171	179
TR10, Degrees; minimum (warmest), °F	ASTM D1329	+41 max	30	31.5
Dry heat resistance	**ASTM D573**			
time @ temp	70 h / 290 °C			
Hardness, Shore A (plied sheet)	ASTM D2240	-5 to 5	0	-2
Tensile Strength, %	ASTM D1414	-20 max	-5.8	1.7
Elongation, %	ASTM D1414	-5 max	7.5	19.6
Weight	ASTM D297	5 max	-0.4	-0.4
Compression Set, 25 % of original deflection	ASTM D395			
time @ temp	70 h / 230 °C	40 max	25.4	18.4
Compression Set, 25 % of original deflection	ASTM D395			
time @ temp	336 h / 230 °C	55 max	30.2	22.5
Media Resistance: ASTM Ref. Fuel B (aromatic fuel)	**ASTM D471**			
time @ temp	70 h / 23 °C			
delta Hardness, Shore A, (plied sheet)	ASTM D2240	-5 to 5	1.7	-1
delta Tensile Strength, %	ASTM D1414	-20 max	-13.6	-8.8
delta Elongation, %	ASTM D1414	-15 max	-4	2.7
delta Volume, %	ASTM D471, D297	0 to 5	0	0.6
time @ temp	336 h / 230 °C	55 max	30.2	22.5

Media Resistance: AMS3085 (Reference Oil 300, turbine engine oil)	**ASTM D471**			
time @ temp	70 h / 200 °C			
delta Hardness, Shore A, (plied sheet)	ASTM D2240	-5 to 5	0	-4
delta Tensile Strength, %	ASTM D1414	-10 max	-0.2	-4
delta Elongation, %	ASTM D1414	-15 max	-7.6	3.4
delta Volume	ASTM D471, D297	0 to 5	0.8	1.2
Compression Set, 25 % of original deflection	ASTM D395			
time @ temp	70 h / 200 °C	25 max	19.1	13.6

Media Resistance: AS1241 Type IV Class 1 or 2 (HiJet IV-A)	**ASTM D471**			
time @ temp	70 h / 125 °C			
delta Hardness, Shore A, (plied sheet)	ASTM D2240	-15 to 0	-3.6	-3
delta Tensile Strength, %	ASTM D1414	-40 max	-21.6	-4.1
delta Elongation, %	ASTM D1414	-15 max	-9.4	7.3
delta Volume	ASTM D471, D297	0 to 15	6.3	5.7
Compression Set, 25 % of original deflection	ASTM D395			
time @ temp	70 h / 125 °C	20 max	12.8	9.5

High temperature operation recommendation up to °F		**to 554**	**610**	**610**