

# 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

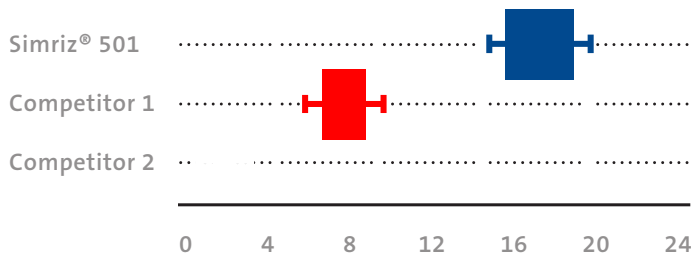
With even greater performance results than the well-known Simriz® Z7257, Simriz® 501 marks our next generation Aerospace Simriz® material while providing continued availability of Simriz® Z7257.

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)



Flight hours at 300°C before failure (x1000)

## 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-NOK 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-NOK 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



## 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
<b>Ring - 214</b>	<b>default</b>			
<b>Original Properties</b>	<b>Method</b>			
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
<b>Dry heat resistance</b>	<b>ASTM D573</b>			
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
<b>Media Resistance: ASTM Ref. Fuel B (aromatic fuel)</b>	<b>ASTM D471</b>			
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



<b>Media Resistance:</b> <b>AMS3085 (Reference Oil 300, turbine engine oil)</b>	<b>ASTM D471</b>			
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
<b>Media Resistance:</b> <b>AS1241 Type IV Class 1 or 2 (HiJet IV-A)</b>	<b>ASTM D471</b>			
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
<b>High temperature operation recommendation up to °F</b>		<b>to 554</b>	<b>610</b>	<b>610</b>

The information contained herein is believed to be reliable, but no representation, guarantees or warranties of any kind are made to its accuracy or suitability for any purpose. The information presented herein is based on laboratory testing and does not necessarily indicate end product performance. Full scale testing and end product performance are the responsibility of the user.

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