

# EM163-80

NAS1613 Rev. 6 Compliant for  
Phosphate Ester Hydraulic Fluids



## Excellent Low Temperature Resilience:

Aerospace hydraulic systems pose some of the most challenging seal environments in the world. The critical nature of aircraft landing systems, actuation systems, wheel and brake assemblies requires a premium sealing compound to reduce the frequency of maintenance and maintain the safety of all passengers. With advancements to aircraft hydraulic fluids, mating hardware designs and sealing requirements the engineers of Parker have developed and launched the EM163 compound. Parker's EM163 not only meets the ever demanding NAS1613 Rev 6 material specification in full, but also offers improved



## Contact Information:

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## Product Features:

- NAS1613 Rev. 6 compliant
- Excellent resistance to all commercially available phosphate ester fluids (ie. AS1241, Skydrol, Hyjet)
- Excellent low temperature performance
- 80 Shore M hardness
- Product capabilities include O-rings, molded shapes, extruded and spliced geometries



ENGINEERING YOUR SUCCESS.

low temperature resilience and excellent resistance to all commercially available phosphate ester hydraulic fluids. With TR-10 temperature of -68°F, EM163 easily surpasses the industry standard requirement and is a best in class option for eliminating low temperature leakage.

Property	Test Method	NAS 1613 Rev 6	EM163
<b>Original Physical Properties</b>		Spec Limits	
Hardness, Shore M, pts	ASTM D2240	80 ± 5	79
Tensile Strength, psi	ASTM D1414	1400	1950
Ultimate Elongation, %	ASTM D1414	125	195
Modulus at 100% Elongation, psi	ASTM D1414	800	900
Specific Gravity	ASTM D297	Report	1.15
<b>Low Temperature Resistance</b>			
TR-10, °F	ASTM D1329	-50	-68
TR-70, °F	ASTM D1329	-18	-42
<b>Compression Set, 25% Deflection, 2-330 O-ring</b>			
22hrs. @ 250°F, in Air	ASTM D395	30	9

<b>Testing in Phosphate Ester Fluids</b>					
<b>Compression Set, 25% Deflection, 2-330 O-ring</b>		Spec Limits	Skydrol LD4	Skydrol 500B-4	Skydrol 5
22hrs. @ 250°F, in Fluid	ASTM D395	20	1	5	-2
70 hrs. @ 160°F, in Fluid		20	2	5	1
<b>Fluid Immersion, 70hrs @ 160°F</b>					
Hardness Change, Shore M, pts.	ASTM D471	-5	-3	-2	-4
Tensile Strength, psi		Report	1717	1964	1545
Ultimate Elongation, %		Report	177	188	162
Modulus at 100% Elongation, psi		500	913	951	913
Volume Change, %, 0.040-0.103" CS		0 to +10	+5	+1	+8
Volume Change, %, 0.116-0.275" CS		0 to +8	+6	+2	+8
<b>Fluid Immersion, 334hrs @ 225°F</b>					
Hardness Change, Shore M, pts.	ASTM D471	Report	-6	-3	-5
Tensile Strength, psi		1200	1706	1736	1510
Ultimate Elongation, %		125	192	185	175
Modulus at 100% Elongation, psi		500	774	827	759
Volume Change, %, 0.040-0.103" CS		0 to +18	+11	+5	+15

