

Akron Rubber Development Laboratory, Inc.



TEST CERTIFICATE

This document certifies Chemraz[®] 678 FFKM

From

Greene, Tweed & Co.


PASSED

The requirements for resistance to Rapid Gas Decompression (RGD)

In accordance with Annex B, ISO 23936-2, 2011 Edition and NORSOK M-710, Rev.3

Test Gas	90% / 10% Molar Volume CH ₄ / CO ₂
Test Temperature	100°C (212°F)
Test Pressure	150 Bar (2175 psig)
Number of Cycles	8
Decompression Rate	20 Bar/Minute (290 psi / min)
Seal Size	ISO 3601-1-312 Class A O-ring, 5.33 mm CX (.210")

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ISO 9001:2008 Registered

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ARDL verifies that Chemraz® 678 FFKM o-ring specimens, supplied by Greene, Tweed & Co., have been subjected to a multi-cycle RGD test, as detailed below:

RGD TEST COMMISSIONED BY		
Greene Tweed & Co.		
SEAL COMPOUND DETAILS		
Seal Manufacturer	Greene Tweed & Co.	
Supplied By	Greene Tweed & Co.	
Compound name/number/reference	X2821G (678), also known as Chemraz® 678	
Elastomer type to ASTM D1418	FFKM	
Lot/batch no.	20314	
Seal Type	O-ring	
Manufacturing method	Not disclosed	
Seal size (ISO 3601-1-312)	312	
CSD (nominal)	mm	5.33
Mean CSD	mm	
RGD TEST CONDITIONS		
Temperature	°C	100±2
Pressure	Bar	150 +10/-5
No. of cycles		8
Dwell between cycles	Hour	1
Decompression rate (average)	Bar/min	20
Gas type	Mol%	90/10 CH ₄ /CO ₂
SEAL HOUSING DETAILS		
Seal compression direction	Radial	
Groove ID	mm	15.54 -0.05
Groove OD	mm	24.61 +0.05
Groove Width	mm	5.97 +0.25
Squeeze (average)	%	14.5
Groove fill (area basis)	%	80 to 85
Number of seals tested		4
ISO TEST SEAL RATINGS		
SEAL REPLICATE	RATING	PASS/FAIL
1	0,0,0,0	PASS
2	0,0,0,0	PASS
3	0,0,0,0	PASS
4	0,0,0,0	PASS
OVERALL RATING	PASS	
GENERAL		
Test laboratory		ARDL, Inc.
Test date		7-15 May 2014
Test gas certified and available	YES/NO	YES
Transducer CALIBRATION AVAILABLE	YES/NO	YES
P/T log available	YES/NO	YES
TEST LABORATORY STAMP/SIGNATURE		

The results indicate the material is resistant to the RGD cycles specified herein. The Chemraz® 678 FFKM material **PASSED** the Rapid Gas Decompression testing per the full requirements of ISO 23936-2 and NORSOK M-710, Rev.3, under the stated conditions.