

08/18/23

Certificate for PN168397

CERTIFICATE OF COMPLIANCE

This summary is to show that the material

Chemraz® 678 FFKM

as supplied to the Akron Rubber Development Laboratory by
Greene, Tweed & Co.

PASSED

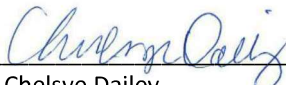
the technical requirements for Fluid Aging as outlined by the test program prescribed by
ISO 23936-2 First Edition, Annex A / Norsok M-710 Edition 3, Clause 7

TEST CONDITIONS	
Test Specimen	ISO 37 Type II tensile bar
Fluid Composition	A.5 – Sour multi-phase fluid aging - A.1.ii: Aromatic (70% Heptane, 20% Cyclohexane, 10% Toluene) - A.3.ii: High H ₂ S (5% CO ₂ , 10% H ₂ S, 85% CH ₄)
Initial Charge Pressure	6.0 ± 0.5 MPa (870 ± 72 psi)
Test Temperatures	165°C / 180°C / 195°C (329°F / 356°F / 374°F)
Operating Temperature	150°C (302°F)

Prepared By: _____


 Bob Zickefoose
 Staff Engineer

Approved By: _____


 Chelsye Dailey
 Mechanical Engineering Manager



An A2LA ISO 17025 Accredited Testing Laboratory-Certificate Numbers 255-01, 255-02, 255-03 and 255-04
 ISO 9001-2015 Registered

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ARDL verifies that the Chemraz® 678 FFKM material supplied by Greene, Tweed & Co. has been subjected to the testing regimen outlined by ISO 23936-2 First Edition, Annex A and NORSOK M-710 Edition 3, Clause 7, under the conditions listed in this document.

Property	Measured	Allowable Change	Source	Comment
Volume (min/max)	+2.12 / +13.56	-5 / +25%	ISO, NORSOK	Within specification
Hardness (min/max)	-3 / +1	-20 / +5 Points	ISO, NORSOK	Within specification
Tensile Strength (min/max)	-13.9 / -3.03	±50%	ISO, NORSOK	Within specification
Elongation at Break (min/max)	-7.55 / +41.76	±50%	ISO, NORSOK	Within specification
50% Modulus (min/max)	-23.16 / +0.02	±50%	ISO, NORSOK	Within specification
100% Modulus (min/max)	-20.31 / -1.79	±50%	ISO, NORSOK	Within specification

After evaluation, the Chemraz® 678 FFKM was shown to **PASS** the technical requirements of the ISO 23936-2, First Edition, Annex A and NORSOK M-710, Edition 3, Clause 7 testing program with no failures during the 42 day test.

Prepared By: 
 Bob Zickefoose
 Staff Engineer

Approved By: 
 Chelsye Dailey
 Mechanical Engineering Manager