March 3, 2015

Certificate No. 08-115117-08

Akron Rubber Development Laboratory, Inc.

www.ardl.com

TEST CERTIFICATE

This document certifies FKM 938

From

Greene, Tweed & Co.

PASSED

the technical requirements for Fluid Aging

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

Test Gas Classification	A.5 (A.1.ii and A.3.i) Multi-Phase Normal H_2S Sour Gas Aromatic Fluid Mix
Test Temperature	165°C, 180°C, and 195°C
Initial Charge Pressure	6.0 +/- 0.5 MPa (870 +/- 72 psi)
Test Specimen	Type 2 ISO 37 test specimens
Operational Service Temperature Classification	150°C

Prepared By: _____
David Nuss
Staff Engineer
ARDL Engineering

Approved By: _____
John Meser
Manager
ARDL Engineering

ACCREDITED
A Testing Lab
*Certificate Numbers 255.01 & 255.02

An A2LA Accredited Testing Laboratory — Certificate Numbers 255.01 & 255.02
ISO 9001:2008 Registered

ISO 9001:2008
Registered

ARDL verifies that FKM 938 Type 2 ISO 37 test specimens, supplied by Greene, Tweed & Co., have been subjected to ISO 23936-2 Annex A and NORSOK M-710 Rev 3 test specifications with no failures during the 42 day aging test.

Property	Measured	Allowable Change	Source	Comment
% Change Volume min/max	Min Increase +4.9% Max Increase +6.5% No Decrease	-5/+25%	ISO, NORSOK	Within specification
Hardness min/max	Min Decrease -7.6 Points Max Decrease -14.0 Points No Increase	+5/-20 Points	ISO, NORSOK	Within specification
% Change Modulus at 50% Elongation min/max	Min Decrease -4.6% Max Decrease -33.0% No Increase	±50%	ISO, NORSOK	Within specification
% Change Modulus at 100% Elongation min/max	Min Decrease -7.8% Max Decrease -28.9% No Increase	±50%	ISO, NORSOK	Within specification
% Change Peak Stress min/max	Min Decrease -0.8% Max Decrease -10.5% No Increase	±50%	ISO, NORSOK	Within specification
% Change Elongation min/max	Min Increase +6.7% Max Increase +23.2% No Decrease	±50%	ISO, NORSOK	Within specification

The results indicate that the material is resistant to the simulated fluid media specific herein. The FKM 938 Elastomer PASSED the full requirements of Annex A per ISO 23936-2 and Norsok M710 Rev 3, under the stated conditions.

David Nuss
Staff Engineer
ARDL Engineering

John Meser
Manager
ARDL Engineering

ARDL is accredited by A2LA for the test methods listed on the attached scope