

Parco

# 9162-95 Fluorocarbon Seals

## Can Your Seals Resist Explosive Decompression?

With oil supplies scarce, drilling operations must enter more hostile environments. Those hostile environments present new challenges. Seals are more vulnerable to explosive decompression (ED), extrusion, and degradation from harsh chemicals. Parco's chemists have created another innovative compound for use in those conditions.

### 9162-95 Meets Your Needs

#### 1. Excellent Resistance to Explosive Decompression

Explosive decompression (ED) is a challenge in many oilfield applications. In high-pressure environments, gases can permeate a seal, causing leakage. If pressure in a well is released too quickly, the gases in the seal may expand, causing the seal to blister or tear. Parco's 9162-95 compound addresses those challenges. After conducting a single-cycle, 24-hour pressure soak, Parco 9162-95 seals exhibited minimal explosive decompression damage.

#### 2. Outstanding Resistance to Compression Set

When installed, most seals must resist fluid under pressure to seal properly. When a seal takes a set from compression, it no longer exerts force on the mating surfaces, resulting in leakage. A compound with low compression set better maintains its elastic properties and original thickness, preserving seal integrity. Parco's 9162-95 compound provides excellent resistance to compression set at higher

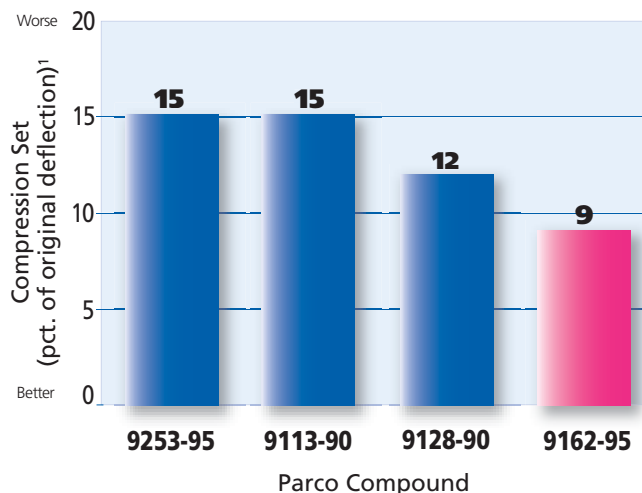
temperatures. After testing 9162-95 for 22 hours at 392°F, it had compression set of only 9 percent (see Figure 1).

#### 3. Enhanced Resistance to Extrusion

Modulus indicates the amount a seal resists deformation under stress. A seal with high modulus is more extrusion resistant than a seal with low modulus. Parco's extrusion-resistant 9162-95 seals are ideal for high-pressure oilfield machinery applications that cannot use contoured back-up rings. At 50 percent elongation, seals made from Parco's 9162-95 compound have a modulus of 1,625 psi.

Fig. 1:

**Compression Set of Typical Parco High-Durometer FKM Compounds**



<sup>1</sup>Compression set calculated after 22 hours at 200°C (392°F).  
Source: Parco Test Reports.

*Parco seals made from 9162-95 have excellent resistance to compression set. At 9 percent, 9162-95 outperforms other high-durometer fluorocarbon compounds.*

## Key Features

Parco's 9162-95 fluorocarbon compound is designed for dynamic, high-pressure sealing applications. Key features include the following:

- **Excellent resistance to explosive decompression:**  
After conducting a single-cycle, 24-hour pressure soak, Parco 9162-95 seals exhibited minimal explosive decompression damage.
- **Outstanding resistance to compression set:**  
Parco 9162-95 seals have a compression set of only 9 percent after 22 hours at 392°F.
- **Wide range of service temperatures:**  
Parco 9162-95 seals can be used in applications from -20 to +400°F.

## Chemical Resistance

USE WITH	DO NOT USE WITH
Carbon Tetrachloride Diester Synthetic Lubricants Gasoline Hot Air Toluene	Acetone Amines Ethyl Acetate

## Typical Values for Compound 9162-95 95-durometer fluorocarbon

Section of Spec.	Physical Property	Requirement <sup>1</sup>	Typical Value	ASTM <sup>2</sup> Test Method
	<b>Original Properties</b>			
	Hardness, Shore A	90 ± 5	93	D2240
	Tensile strength, MPa (psi), min.	10.0(1450)	23.5(3410)	D412
	Ultimate elongation, pct., min.	100	103	D412
Z1	Modulus at 50 pct. elongation, psi	Report	1625	D412
Z2	Specific gravity	Report	1.81	D297
	<b>Heat Aging</b>			
	<b>70 hours at 250°C (482°F)</b>			D573
Basic	Hardness change, pts., Shore A	±15	0	
	Tensile strength change, pct.	±30	-30	
	Ultimate elongation change, pct., max.	-50	-1	
	<b>Fluid Aging, IRM<sup>3</sup> 903 Oil</b>			
	<b>70 hours at 150°C (302°F)</b>			D471
Basic	Volume change, pct., max.	10	2	
	<b>Compression Set, Plied</b>			D395
	<b>pct. of original deflection, max.</b>			Method B
B37	22 hours at 175°C (347°F)	30	4	
B38	22 hours at 200°C (392°F)	50	9	
	<b>Fluid Aging, ASTM Reference Fuel C</b>			
	<b>70 hours at 23°C (73°F)</b>			D471
EF31	Hardness change, pts., Shore A	±5	-3	
	Tensile strength change, pct., max.	-25	-12	
	Ultimate elongation change, pct., max.	-20	2	
	Volume change, pct.	0 to 10	3	
	<b>Fluid Aging, Service Liquid No. 101</b>			
	<b>70 hours at 200°C (392°F)</b>			D471
EO78	Hardness change, pts., Shore A	-15 to 5	-8	
	Tensile strength change, pct., max.	-40	-16	
	Ultimate elongation change, pct., max.	-20	8	
	Volume change, pct.	0 to 15	9	

<sup>1</sup>Compound 9162-95 meets the requirements shown above for ASTM D2000 M3HK910 B37 B38 EF31 EO78 Z1 Z2. <sup>2</sup>ASTM is the acronym for the American Society for testing and Materials. <sup>3</sup>IRM is the acronym for Industry Reference Material.  
Source: Parco Test Report 8637A.

⚠ This brochure is intended as a guideline and reference. Appropriate testing and validation by users having technical expertise is necessary for proper use of Parco products.

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