

# Parco

## 4457-65 Nitrile Seals

### Need Seals to Meet AMS-P-5315?

#### 4457-65 Meets Your Needs

##### 1. Exceeds AMS-P-5315

Seals made from our 65-durometer nitrile compound 4457-65 exceed the requirements of AMS-P-5315 (see test report on reverse side). Parco supplies seals to 28 military and aerospace specifications. We are also one of only a few manufacturers approved to supply Qualified Products List (QPL) rubber seals. Our quality system is certified to ISO 9001, ISO/TS 16949, AC7115, and AS9100. So when you specify 4457-65, rest assured that you've made the right choice.

##### 2. Excellent Resistance to Low Temperatures

Seals used in low temperatures may become hard and brittle, making them more susceptible to cracking. Parco's 4457-65 seals can be used in static sealing applications with continuous service temperatures as low as -65°F. The excellent low-temperature properties of 4457-65 seals enable them to resist cracking in low-temperature applications.

##### 3. Outstanding Resistance to Compression Set

To perform properly, most seals must resist taking a set from compression after being installed. When a seal takes a set, it no longer exerts force on the mating surfaces, resulting in leakage. A compound with low compression set, like 4457-65, better maintains its elastomeric properties and original thickness, preserving seal integrity. After

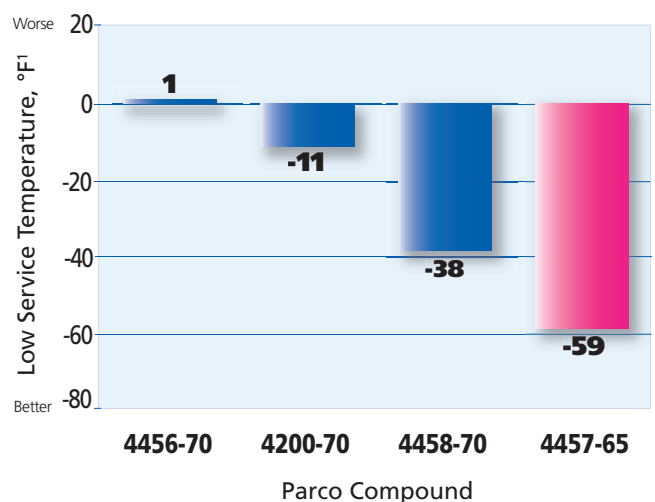
testing 4457-65 for 22 hours at 212°F, it had compression set of only 9 percent.

#### Applications

Parco's 65-durometer nitrile compound 4457-65 is ideal for use in low temperatures. Seals made from 4457-65 can be used in dynamic sealing applications with continuous service temperatures as low as -59°F (see Figure 1). 4457-65 offers excellent service with gasoline and military aircraft hydraulic fluid. Seals made from 4457-65 should not be exposed to automatic transmission fluid, hot air, or ultra violet light.

Fig. 1:

#### Low-Temperature Properties of Medium Durometer Nitrile Compounds



<sup>1</sup>Values taken from temperature retraction (TR-10) tests.  
Source: Parco Test Reports.

*4457-65 seals have excellent low-temperature properties compared to other medium durometer nitrile compounds.*

## Key Features

Parco's 4457-65 nitrile seals are ideal for use in low temperatures and hydraulic fluids. Key features include the following:

- **Meets popular military specification:**  
Parco 4457-65 seals exceed the requirements for AMS-P-5315.
- **Excellent resistance to low temperatures:**  
Parco 4457-65 seals can be used in static applications with continuous service temperatures as low as -65°F.
- **Exceptional Prices:**  
Parco 4457-65 prices are among the lowest available.
- **Wide range of service temperatures:**  
Parco 4457-65 seals are suitable for applications ranging from -65 to +200°F.

## Chemical Resistance

USE WITH	DO NOT USE WITH
Gasoline Military Aircraft Hydraulic Fluid	Automatic Transmission Fluid Hot Air Ultraviolet Light

## Typical Values for Compound 4457-65 65-durometer nitrile for AMS-P-5315

Section of Spec.	Physical Property	Requirement <sup>1</sup>	Typical Value	ASTM <sup>2</sup> Test Method
Z1	<b>Original Properties</b> Hardness, Shore A	65 ± 5	65	D2240
Z2	Tensile strength, MPa (psi), min.	8(1160)	9(1303)	D412
Z3	Ultimate elongation, pct., min.	200	266	D412
	Modulus at 100 pct., elongation, psi	Report	541	D412
	Specific gravity	Report	1.31	D297
Basic	<b>Heat Aging</b> <b>70 hours at 100°C (212°F)</b> Hardness change, pts., Shore A	±15	6	D573
	Tensile strength change, pct.	±30	21	
	Ultimate elongation change, pct., max.	-50	-14	
B14	<b>Compression Set, Solid</b> <b>22 hours at 100°C (212°F)</b> pct. of original deflection, max.	25	9	D395 Method B
EF11	<b>Fluid Aging, ASTM Reference Fuel A</b> <b>70 hours at 23°C (73°F)</b> Hardness change, pts., Shore A	±10	-7	D471
	Tensile strength change, pct., max.	-25	-17	
	Ultimate elongation change, pct., max.	-25	-19	
	Volume change, pct.	-5 to 10	4	
EF21	<b>Fluid Aging, ASTM Reference Fuel B</b> <b>70 hours at 23°C (73°F)</b> Hardness change, pts., Shore A	-30 to 0	-11	D471
	Tensile strength change, pct., max.	-60	-31	
	Ultimate elongation change, pct., max.	-60	-34	
	Volume change, pct.	0 to 40	24	
Z4	<b>Low Temperature Property</b> TR-10, °C (°F)	Report	-51(-59)	D1329

<sup>1</sup>Compound 4457-65 meets the requirements shown above for ASTM D2000 M2BG708 B14 EF11 EF21 Z1 Z2 Z3 Z4. Compound 4457-65 also meets the requirements for Aerospace Material Specification AMS-P-5315, *Butadiene - Acrylonitrile (Nbr) Rubber for Fuel-Resistant Seals 60 to 70*. The properties reported are typical for compound 4457-65 but do not reflect the requirements of AMS-P-5315.

<sup>2</sup>ASTM is the initialism for the American Society for Testing and Materials.

Source: Parco Test Report 9428.

⚠ 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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