

Parco

4081-90 Nitrile Seals

Need Seals to Meet AMS-P-5510?

When missions and lives depend on a seal, specifying the right product is critical. That's why the United States Congress mandated in 1956 certain Qualified Products Lists (QPLs) to standardize supplies for the Department of Defense. Before being added to a QPL, a company must undergo a rigorous evaluation of its quality system. Parco is one of only a few manufacturers approved to supply QPL rubber seals for aerospace and defense applications. Our 4081-90 nitrile compound is QPL-listed for AMS-P-5510.

4081-90 Meets Your Needs

The enhanced properties of Parco's 4081-90 compound make it ideal for applications that require a material that resists low temperatures and higher pressures. Parco recommends its 4081-90 compound for straight-thread, tube-fitting boss seals for use in hydraulic or pneumatic systems.

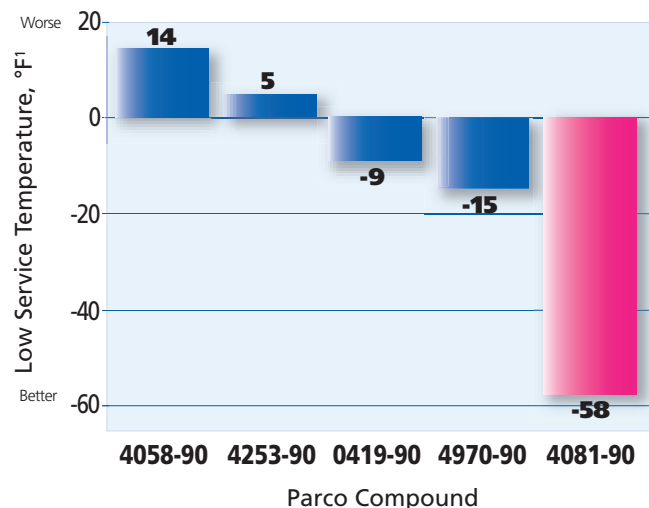
1. Superior Performance at Low Temperatures

Seals used in low temperatures may become hard and brittle, making them more susceptible to cracking. Parco's 4081-90 seals can be used in static sealing applications with continuous service temperatures as low as -65°F. The excellent low-temperature properties of 4081-90 seals enable them to resist cracking in low-temperature applications.

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 4081-90 compound provides excellent resistance to compression set. After testing 4081-90 for 22 hours at 212°F, it had compression set of only 11 percent.

Fig. 1: **Low Service Temperatures of Parco 90-Durometer Nitrile Compounds**



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

4081-90 seals have excellent low-temperature properties compared to other 90-durometer nitrile compounds. 4081-90 seals can be used in dynamic sealing applications with continuous service temperatures as low as -58°F.

Key Features

Parco's 4081-90 nitrile seals are ideal for use in low-temperature, higher pressure sealing applications. Key features include the following:

- **Superior performance at low temperatures:**
Parco 4081-90 seals can be used in static applications with continuous service temperatures as low as -65°F.
- **Outstanding resistance to compression set:**
Parco 4081-90 seals had a compression set of only 11 percent after 22 hours at 212°F.
- **Mees popular military specification:**
Parco 4081-90 seals meet the requirement for AMS-P-5510.
- **Wide range of service temperatures:**
Parco 4081-90 seals are suitable for applications ranging from -65 to +275°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 4081-90 90-durometer nitrile for AMS-P-5510

Physical Property	Requirement ¹	Typical Value	ASTM ² Test Method
Original Properties			
Specific gravity	1.25-1.45	1.29	D297
Hardness, Shore A, min.	88	88	D2240
Tensile strength, psi, min.	1450	1747	D1414
Ultimate elongation, pct., min.	80	134	D1414
Modulus at 50 pct., elongation, psi, min.	500	663	D1414
TR-10, °C (°F), max.	-43(-45)	-72(-58)	D1329
Heat Aging			
168 hours at 70°C (158°F)			D573 D1414
Hardness change, pts., Shore A	0 to 5	2	
Tensile strength change, pct.	-10	2	
Ultimate elongation change, pct., max.	-15	-7	
Compression set, pct. of original deflection, max.	35	23	
Fluid Aging, MIL-PRF-5606			
168 hours at 70°C (158°F)			D471 D1414
Hardness change, pts., Shore A	-5 to 5	-5	
Tensile strength change, pct., max.	-15	-12	
Ultimate elongation change, pct., max.	-20	-13	
TR-10, °C (°F), max.	-43(-45)	-71(-57)	D1329
Compression set, pct. of original deflection, max.	25	11	D395
Volume change, pct.	1 to 8	5	

¹Compound 4081-90 meets the requirements shown above for AMS-P-5510, Revision None. The properties reported are typical for compound 4081-90 but do not reflect the requirements of AMS-P-5510, Revision None. ²ASTM is the initialism for the American Society for Testing and Materials. ³IRM is the initialism for Industry Reference Material.

Source: Parco Test Report 9155.

⚠ 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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