

Parco

2269-70 HNBR Seals

Need Oil Resistant Seals?

2269-70 Meets Your Needs

1. Outstanding Resistance to Oils at High Temperatures

Exposure to oils can cause seals to swell significantly. High temperatures can also cause seals to undergo irreversible chemical changes, reducing resistance to compression set. Parco seals made from 70-durometer hydrogenated nitrile (HNBR) compound, 2269-70, offer outstanding resistance to oils at high temperatures. After testing 2269-70 in Industry Reference Material (IRM) 903 oil for 70 hours at 302°F, its volume swell was only 1 percent.

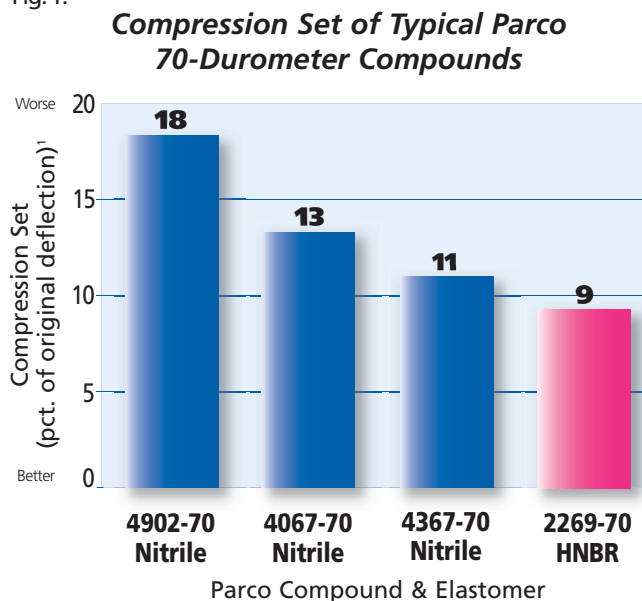
2. Excellent Resistance to Compression Set

To perform properly, 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 2269-70, better maintains its elastomeric properties and original thickness, preserving seal integrity. Seals made from Parco's 2269-70 compound provide excellent resistance to compression set (see Figure 1). After testing 2269-70 for 22 hours at 212°F, it had a compression set of only 9 percent.

HNBR Outperforms Conventional Nitrile

HNBR significantly outperforms conventional nitriles in resisting heat and sour crude. HNBR compounds have typical service ranges from -40 to +325°F and are recommended when upgrading from nitriles. HNBR compounds are also a less expensive alternative to fluorocarbon. Parco's most popular HNBR compound is 2269-70.

Fig. 1:



¹Compression set calculated after 22 hours at 100°C (212°F).

Source: Parco Test Reports.

Parco seals made from 2269-70 have excellent resistance to compression set. At 9 percent, 2269-70 outperforms other 70-durometer compounds.

Key Features

Parco's 2269-70 HNBR seals are an excellent choice for a variety of applications. Key features include the following:

- Outstanding resistance to oils at high temperatures:**
 Parco 2269-70 seals have volume swell of 1 percent after testing them in IRM 903 oil for 70 hours at 302°F.
- Excellent resistance to compression set:**
 Parco 2269-70 seals have a compression set of only 9 percent after 22 hours at 212°F.
- Very good resistance to extrusion:**
 Parco 2269-70 seals have a modulus at 100 percent elongation of 770 psi.
- Wide range of service temperatures:**
 Parco 2269-70 seals are suitable for applications ranging from -30 to +300°F.

Typical Values for Compound 2269-70 70-durometer HNBR

Section of Spec.	Physical Property	Requirement ¹	Typical Value	ASTM ² Test Method
	Original Properties			
	Hardness, Shore A	70 ± 5	69	D2240
	Tensile strength, MPa (psi), min.	14(2031)	18.2(2640)	D412
	Ultimate elongation, pct., min.	250	295	D412
Z1	Modulus at 100 pct., elongation psi	Report	770	D412
Z2	Specific gravity	Report	1.29	D297
	Heat Aging			
A25	70 hours at 125°C (257°F)			D875
	Hardness change, pts., Shore A	0 to 15	4	
	Tensile strength change, pct., max.	-25	1	
	Ultimate elongation change, pct., max.	-50	-13	
	Compression Set, Solid			
	Pct. of original deflection, max.			D395 Method B
B14	22 hours at 100°C (212°F)	25	9	
Z3	22 hours at 150°C (302°F)	25	12	
	Fluid Aging, IRM³ 901 Oil			
EO16	70 hours at 150°C (302°F)			D471
	Hardness change, pts., Shore A	0 to 10	9	
	Tensile strength change, pct., max.	-20	6	
	Ultimate elongation change, pct., max.	-40	-3	
	Volume change, pct.	-15 to 5	-11	
	Fluid Aging, IRM 903 Oil			
EO36	70 hours at 150°C (302°F)			D471
	Hardness change, pts., Shore A	±10	-1	
	Tensile strength change, pct., max.	-35	-2	
	Ultimate elongation change, pct., max.	-35	-4	
	Volume change, pct.	0 to 25	1	

¹Compound 2269-70 meets the requirements shown above for ASTM D2000 M3CH714 A25 B14 EO16 EO36 Z1 Z2 Z3.

²ASTM is the acronym for the American Society for Testing and Materials.

³IRM is the acronym for Industry Reference Material.

Source: Parco Test Report 8305.

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Parco, Inc., 1801 S. Archibald Ave., Ontario, California 91761
 909-947-2200 Fax 909-923-0288 parcoinc.com