

**N4007-90 Highly Saturated Nitrile (HSN)**

No. 5207B1-USA

**N4007-90 Highly Saturated Nitrile compound exhibits exceptional tensile strength and seal performance in harsh environments**

**Oil Well Sealing Solutions**

N4007-90 has been developed to meet the service demands imposed upon rubber materials in oil well applications. Enormous tensile strength coupled with high resistance to heat and compatibility with hydrogen sulfide, corrosion inhibitors, steam and oil make N4007-90 an excellent solution for oil well sealing problems. N4007-90 is ideal for use in blowout preventers, well-head seal packing, and similar tough sealing applications found in the oil field industry.

**Features**

- High tensile strength
- Low compression set
- High modulus
- Resistance to aggressive oils
- High temperature rating

**Greater Value High-Performance Compounds**

As industry in general increases its use of new and more diverse chemical compounds, it has become apparent that better, higher performance elastomers are needed to seal those materials. The harsh conditions and environments that today's elastomer seals are subjected to, made the development of higher performance elastomers a necessity. The cost of such materials however, is often extreme when purchasing high-performance elastomer seals. Parker Seal, in response to this need, has developed an entire series of cost-effective high-performance seal compounds:

**N4287-80, N4288-83, N4299-90 and N4007-90**

**Highly Saturated Nitrile (HSN)**

Parker Compounds N4287-80, N4288-83, N4299-90 and N4007-90 are based on a recently developed high-performance elastomer polymer called Highly Saturated Nitrile or HSN. HSN compounds are formulated to perform well in many of the more stringent sealing environments including sealing of corrosion inhibitors, Flex fuels, silicon greases and oils, ethylene glycol-based fluids, petroleum oils and fluids, and many other harsh and hard-to-seal fluids.



**Advantages**

- Excellent abrasion resistance means increased seal life
- Better rebound for faster reaction to rapid changes in pressure.
- Greater extrusion resistance at higher pressures
- Suitable for use in applications up to 300° F

**Contact Parker**

Parker EPS Division has highly skilled and experienced application engineers. We understand that cost and performance are key factors to be considered when selecting the right seal and material for your application. Let a Parker application engineer assist you in selecting the most cost effective solution for your tough sealing applications. Call (801) 972-3000.

**Typical Physical Properties**

	N4007-90	N4299-90	N4288-80	N4287-75
Hardness Shore A	90	90	82	75
Tensile Strength PSI	4500	4400	3000	2900
100% Modulus PSI	2000	2000	1200	700
Elongation %	200	150	180	300
Compression Set (%)				
70 Hrs @ 212° F	22	21	23	26
Max Temp. °F	320	300	300	300
Min Temp. - °F	-20	-20	-20	-20

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# Compound N4007-90

## Test Results

Media	Hardness Change, pts	100% Modulus Change, %	Ultimate Tensile Change, %	Elongation Change, %	Weight Change, %	Volume Change, %
Fuel A	0	-2	-6	+8	+1	+2
Final Values	92	2667	3800	140		
Fuel B	-8	-14	-24	-8	+8	+10
Final Values	84	2345	3057	120		
Fuel C	-18	-	-17	-31	+29	+44
Final Values	74	-	2217	90		
Methanol	-2	0	-17	+8	+5	+9
Final Values	90	2427	3371	140		
JP-4 Jet Fuel	-7	-3	-14	-8	+9	+15
Final Values	85	2635	3478	120		
JA Jet Fuel	0	+12	-1	+8	+4	+5
Final Values	92	3057	4000	140		
ASTM #1 Oil	-2	+5	-4	-15	-1	-1
Final Values	90	2870	3889	110		
ASTM #3 Oil	-10	-6	+2	-8	+10	+14
Final Values	82	2575	4133	140		
MIL-H-5606	-2	0	-4	-8	+6	+9
Final Values	90	2733	3867	140		
Jet Oil II	-20	-8	0	-15	+14	+18
Final Values	72	2518	4047	110		
Stauffer 7700	-21	+1	-9	-15	+14	+18
Final Values	71	2744	3696	110		
Rando HD32	+1	+7	0	-8	+1	+2
Final Values	93	2909	4044	120		
Rapeseed Oil	-3	-2	+4	+15	+1	+2
Final Values	89	2667	4208	150		
Ethylene Glycol	-2	+8	+4	0	+2	+2
Final Values	90	2955	4196	130		
Distilled Water	-2	+4	+1	+15	+2	+1
Final Values	90	2837	4093	150		
Oven Air Age	0	+6	+2	+8	-1	none
Final Values	92	2894	4133	140		
Even Air Age	+1	+12	+2	+8	-2	none
Final Values	93	3067	4133	140		

 70 Hrs @ Room Temperature

 168 Hrs. @ 100 C

 168 Hrs. @ 70 C

**Warning!** – Failure, improper selection or improper use of the products and/or systems described herein or related items can cause death, personal injury or property damage. This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through his own analysis and testing is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

### For Further Information Contact:

Parker Hannifin Corporation  
**Engineered Polymer Systems Division**  
 Salt Lake City, UT 84119  
 Phone: 801-972-3000  
 Fax: 801-973-4019

[www.parkerseals.com](http://www.parkerseals.com)

