

# Material Properties

## HNBR 90 (HSN90, HNBR 90 Duro)

### Material code: 122

Hydrogenated Nitrile Butadiene Rubber HNBR, also known as Highly Saturated Nitrile HSN, is special class of nitrile rubber NBR that has been hydrogenated to increase saturation of the butadiene segment of the carbon polymer backbone. Subsequent improvements to the material properties, over that of a nitrile rubber NBR, include greater thermal stability, broader chemical resistance, and greater tensile strength.

Physical Properties	ASTM Method	Typical Values
Specific Gravity	D297	1.18 gr/cm <sup>3</sup>
Water Absorption (24 hrs. @ 74°F)	D570	0.01 %
Color	N/A	Black
<b>Mechanical Properties</b>		
Tensile Strength	D412	4150 psi
Elongation	D412	
• At 904 psi		50%
• At 2060		100%
• At break		165%
Compression Set	D395	
• 22 hrs. at 257°F		5%
• 70 hrs. at 302°F		31%
Hardness	Shore A	80
Shear Modulus, G		1490 psi
Youngs Modulus, E		4470 psi
<b>Aging Resistance</b>		
Heat Resistance (336 hrs. at 302°F)	D573	
Hardness change	Shore A	+5
Tensile Strength change		-16.4%
Elongation Change		-57.6%
<b>ASTM #3 Oil Resistance (70 hrs. at 257°F)</b>		
Hardness Change	Shore A	-3
Tensile Strength Change		-11.3%
Elongation Change		-22.5%
Volume Change		+11.0%
<b>Thermal Properties</b>		
Brittle Point Temperature	D764	-45°F
Glass Transition Temperature (Tg)	D3418	-25°F
Continuous Service Temperature		302°F

**Note:** Property values should be interpreted as typical rather than minimum value. All technical information and recommendations are presented in good faith, and based upon laboratory and real-world tests believe to be reliable and practical. However, K.C. Seals, Inc. cannot guarantee the accuracy or completeness of this information, and it is the customers' responsibility to determine product suitability to any given application.

