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**O-Ring Compound N50 Data Sheet**  
Material: Butadiene Acrylonitrile Copolymer  
50 Durometer, Black

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**General Information:**

Nitrile, Buna, or NBR is one of the most common sealing elastomers due to its resistance to petroleum-based fuels and lubricants. Nitrile elastomers are copolymers of acrylonitrile and butadiene

**Cure System:** *Sulfur-cured*

Sulfur-cured compounds offer better low temperature properties but are more prone to hardening with high temperatures. Peroxide-cured nitriles have better heat resistance and lower compression sets but are more expensive and are more difficult to process.

**Temperature Range:** -40°C (-40°F) to 100°C (212°F)

**Attributes:**

Color: Black

Durometer Shore A: 50±5

Shelf-life: 15 years

**Performs Well In:**

- Petroleum based oils & fuels
- Aliphatic hydrocarbons
- Vegetable oils
- Silicone oils & greases
- Ethylene glycol
- Dilute acids
- Water to below 100°C (212°F)

**Doesn't Perform Well In:**

- Aromatic hydrocarbons
- Automotive brake fluid
- Chlorinated hydrocarbons
- Ketones
- Ethers
- Esters
- Phosphate ester hydraulic fluids
- Strong acids
- Ozone / weathering / sunlight

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# TEST REPORT FOR O-RING COMPOUND N50

MATERIAL: BUTADIENE ACRYLONITRILE COPOLYMER

DUROMETER: 50

COLOR: BLACK

ASTM\* D2000 M2BG510 A14 B14 EA14 EF11 F17

SECTION OF SPEC.	PROPERTIES	REQUIREMENTS	RESULTS	ASTM TEST METHOD
	<b>ORIGINAL PHYSICAL PROPERTIES</b>			
	Hardness, Shore A	50±5	48	D2240-05
	Tensile Strength, psi (MPa)	1450(min)	1688(11.64)	D412-06a
	Elongation, min, percent	300(min)	384	D412-06a
	Modulus @ 100%, psi (Mpa)		230(1.59)	D412-06a
	Specific Gravity (g/cm <sup>3</sup> )		1.256	
A14	<b>HEAT AGE</b>			D573-04
	<b>70 hours at 100°C</b>			
	Hardness Change, points	±15	+6	
	Tensile Strength Change, percent	±30	-5	
	Elongation Change, percent	-50(max)	-30	
	Weight Change, percent		-1.9	
B14	<b>COMPRESSION SET</b>			D395-03B
	22 hours at 100°C, percent	25%(button)(max)	10.4	
EA14	<b>WATER RESISTANCE</b>			D471-16a
	<b>70 hours @ 100°C</b>			
	Hardness Change, points	±10	-1	
	Tensile Change, max, percent		-2	
	Elongation Change, max, percent		-17	
	Volume Change, percent	±15	+7.9	
EF11	<b>ASTM FUEL A RESISTANCE</b>			D471-06
	<b>70 hours at 23°C</b>			
	Hardness Change, points	±10	+2	
	Tensile Change, max, percent	-25(max)	-11	
	Elongation Change, max, percent	-25(max)	-14	
	Volume Change, percent	-5~+10	-2	
F17	<b>LOW-TEMP BRITTLENESS POINT</b>			D2137-05 Method A
	<b>3 minutes at -40°C</b>			
	Sample type: T-50			
	Coolant: Methonal			
	Brittleness temperature to nearest 1°C	No crack	Pass	

\*American Society for Testing and Materials

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