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## O-Ring Compound N90 Data Sheet

Material: Butadiene Acrylonitrile Copolymer  
90 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* compounds show better low-temperature properties, however are more prone to hardening with high temperatures.

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

### **Attributes:**

- Color: Black
- 90±5 Shore A durometer
- Shelf-life: 15 years

### Performs Well In:

- Petroleum based oils and fuels
- Aliphatic hydrocarbons
- Vegetable oils
- Silicone oils and 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: COMPOUND N90

MATERIAL: BUTADIENE ACRYLONITRILE COPOLYMER

DUROMETER: 90

COLOR: BLACK

ASTM\* D2000 M7BG910 B14 EO14 EO34 EF11 EF21 EA14 Z1

| SECTION OF SPEC. | PROPERTIES                                | REQUIREMENTS       | RESULTS      | ASTM TEST METHOD     |
|------------------|---|--------------------|--------------|----------------------|
|                  | <b>ORIGINAL PHYSICAL PROPERTIES</b>       |                    |              |                      |
|                  | Hardness, Shore A                         | 90±5               | 87           | D2240-05             |
|                  | Tensile Strength, psi (MPa)               | 1450 (min.)        | 2499 (17.23) | D412-06a             |
|                  | Elongation, percent                       | 100 (min.)         | 133          | D412-06a             |
|                  | Modulus at 100%, psi (MPa)                |                    | 1990 (13.72) | D412-06a             |
|                  | Specific Gravity (g/cm <sup>3</sup> )     |                    | 1.381        |                      |
| B14              | <b>COMPRESSION SET</b>                    |                    |              | D395-04,<br>Method B |
|                  | <b>22 hours at 100°C (212°F), percent</b> | 25 (button) (max.) | 7.8          |                      |
| EA14             | <b>WATER RESISTANCE</b>                   |                    |              | D471-06              |
|                  | <b>70 hours at 100°C (212°F)</b>          |                    |              |                      |
|                  | Hardness Change, points                   | ±10                | -2           |                      |
|                  | Tensile Strength Change, percent          |                    | +5           |                      |
|                  | Elongation Change, percent                |                    | -11          |                      |
|                  | Volume Change, percent                    | ±15                | +3.3         |                      |
| EF11             | <b>FUEL A RESISTANCE</b>                  |                    |              | D471-06              |
|                  | <b>70 hours at 23°C (73.4°F)</b>          |                    |              |                      |
|                  | Hardness Change, points                   | ±10                | -3           |                      |
|                  | Tensile Strength Change, percent          | -25 (max.)         | 0            |                      |
|                  | Elongation Change, percent                | -25 (max.)         | -5           |                      |
|                  | Volume Change, percent                    | -5 to +10          | +1.8         |                      |
| EF21             | <b>FUEL B RESISTANCE</b>                  |                    |              | D471-06              |
|                  | <b>70 hours at 23°C (73.4°F)</b>          |                    |              |                      |
|                  | Hardness Change, points                   | 0 to -30           | -14          |                      |
|                  | Tensile Strength Change, percent          | -60 (max.)         | -28          |                      |
|                  | Elongation Change, percent                | -60 (max.)         | -30          |                      |
|                  | Volume Change, percent                    | 0 to +40           | +18.7        |                      |
| EO14             | <b>NO. 1 OIL</b>                          |                    |              | D471-06              |
|                  | <b>70 hours at 100°C (212°F)</b>          |                    |              |                      |
|                  | Hardness Change, points                   | -5 to +5           | +3           |                      |
|                  | Tensile Strength Change, percent          | -25 (max.)         | -2           |                      |
|                  | Elongation Change, percent                | -45 (max.)         | -17          |                      |
|                  | Volume Change, percent                    | -10 to +5          | -2.8         |                      |
| EO34             | <b>NO. 3 OIL</b>                          |                    |              | D471-06              |
|                  | <b>70 hours at 100°C (212°F)</b>          |                    |              |                      |
|                  | Hardness Change, points                   | -10 to +5          | -5           |                      |
|                  | Tensile Strength Change, percent          | -45 (max.)         | -3           |                      |
|                  | Elongation Change, percent                | -45 (max.)         | -16          |                      |
|                  | Volume Change, percent                    | 0 to +25           | +6.0         |                      |

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