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# *Rubber Material Selection Guide*
# *NR or Natural Rubber*
# *Polyisoprene*

- Abbreviation — NR
- ASTM D-2000 Classification — AA
- Chemical Definition — Polyisoprene
- Compound Number Category — 10000 Series

## ♦ Physical & Mechanical Properties

- Durometer or Hardness Range — 30 – 95 Shore A
- Tensile Strength Range — 500 – 3,500 PSI
- Elongation (Range %) — 300 % – 900 %
- Abrasion Resistance — Good to Excellent
- Adhesion to Metal — Excellent
- Adhesion to Rigid Materials — Excellent
- Compression Set — Excellent
- Flex Cracking Resistance — Excellent
- Impact Resistance — Good to Excellent
- Resilience / Rebound — Excellent
- Tear Resistance — Good to Excellent
- Vibration Dampening — Good to Excellent

## ♦ Chemical Resistance

- Acids, Dilute — Fair to Excellent
- Acids, Concentrated — Poor to Good
- Acids, Organic (Dilute) — Fair to Good
- Acids, Organic (Concentrated) — Good
- Acids, Inorganic — Good

- **Chemical Resistance**

| | |
|---|---|
| Alcohol's | Good to Excellent |
| Aldehydes | Good |
| Alkalies, Dilute | Fair to Excellent |
| Alkalies, Concentrated | Fair to Good |
| Amines | Poor to Fair |
| Animal & Vegetable Oils | Poor to Good |
| Brake Fluids, Non-Petroleum Based | Good |
| Diester Oils | Poor |
| Esters, Alkyl Phosphate | Poor |
| Esters, Aryl Phosphate | Poor |
| Ethers | Poor |
| Fuel, Aliphatic Hydrocarbon | Poor |
| Fuel, Aromatic Hydrocarbon | Poor |
| Fuel, Extended (Oxygenated) | Poor |
| Halogenated Solvents | Poor |
| Hydrocarbon, Halogenated | Poor |
| Ketones | Fair to Good |
| Lacquer Solvents | Poor |
| LP Gases & Fuel Oils | Poor |
| Mineral Oils | Poor |
| Oil Resistance | Poor |
| Petroleum Aromatic | Poor |
| Petroleum Non-Aromatic | Poor |
| Refrigerant Ammonia | Good |
| Refrigerant Halofluorocarbons | R-12, R-13 |
| Refrigerant Halofluorocarbons w/ Oil | Poor |
| Silicone Oil | Good |
| Solvent Resistance | Poor |

- **Thermal Properties**
  - Low Temperature Range — - 20º F to - 70º F
  - Minimum for Continuous Use (Static) — - 60º F
  - Brittle Point — - 80º F
  - High Temperature Range — + 180º F to + 220º F
  - Maximum for Continuous Use (Static) — + 180º F

- **Environmental Performance**
  - Colorability — Poor
  - Flame Resistance — Fair to Good
  - Gas Permeability — Fair to Good
  - Odor — Good to Excellent
  - Ozone Resistance — Poor
  - Oxidation Resistance — Good
  - Radiation Resistance — Fair to Good
  - Steam Resistance — Good
  - Sunlight Resistance — Poor to Fair
  - Taste Retention — Fair to Good
  - Weather Resistance — Poor to Fair
  - Water Resistance — Excellent

For assistance in identifying the appropriate polymer or material, or to develop and formulate a NR or natural rubber compound to meet your specific application and performance requirements, please contact Robinson Rubber Products at e-mail: sales@robinsonrubber.com or phone: +1-763-535-6737.