

Polybutadiene Rubber (BR)

ASTM D1418 & ISO 1629 Designation: **BR**

ASTM D2000, SAE J200 Type/Class: **AA, BA**

Mil-R-3065 (Mil-Std 417) Class: **RN**



Advantages: Excellent low temperature properties; excellent resilience and abrasion resistance. A very high level of cure can be achieved. Used in tire applications but mainly blended with other polymers where it reduces heat build up and improves abrasion resistance.

Limitations: Not oil resistant and prone to ozone cracking; moderate heat resistance and high resilience results in low wet skid resistance in tire treads; can be difficult to process.

Physical & Mechanical Properties

Durometer or Hardness Range: 45-80 Shore A
Tensile Strength Range: 500 - 2,000 PSI
Elongation (Range%): 450% - 650%
Abrasion Resistance: Fair to Excellent
Adhesion to Metal: Good
Adhesion to Rigid Materials: Fair to Good
Compression Set: Good to Excellent
Flex Cracking Resistance: Fair to Excellent
Impact Resistance: Poor to Good
Resilience/Rebound: Fair to Excellent
Tear Resistance: Poor to Good
Vibration Dampening: Fair to Good

Thermal Properties

General Temperature Range -150°F to 220°F
Min. for continuous Use (Static): -90°F
Brittle Point: -100°F
Max. for Continuous Use (Static): 200°F

Environmental Performance

Colorability: Good
Flame Resistance: Poor
Gas Permeability: Good
Odor: Good
Ozone Resistance: Poor
Oxidation Resistance: Good to Excellent
Radiation Resistance: Poor
Steam Resistance Fair to Good
Sunlight Resistance: Poor
Weather Resistance: Poor to Good
Water Resistance: Good to Excellent

Chemical Resistance

Acids, Dilute: Fair to Good
Acids, Concentrated: Fair to Good
Acids, Organic (Dilute): Good
Acids, Organic (Concentrated): Poor
Alcohols: Fair to Good
Aldehydes: Good
Alkalies, Dilute: Fair to Good
Alkalies, Concentrated: Fair to Good
Amines: Poor to Good
Animal & Vegetable Oils: Poor to Good
Brake Fluids, Non-Petroleum Based: Poor to Good
Diester Oils: Poor
Esters, Alkyl Phosphate: Poor
Esters, Aryl Phosphate: Poor
Esters: Poor
Fuel, Aliphatic Hydrocarbon: Poor
Fuel, Aromatic Hydrocarbon: Poor
Fuel, Extended (Oxygenated): Poor
Halogenated Solvents: Poor
Hydrocarbon, Halogenated: Poor
Ketones (MEK, acetone): 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: Poor
Solvent Resistance: Poor