Protolis

# Grades for Compression Molding

| Material | Other names | Description | Limitations | Applications | Price index | Natural color | Color match | Temperature resistance - ° C / °F | Hardness ASTM D2240 - Shore A | Tensile strength ASTM D412 - PSI | Elongation at break ASTM D412 - % | Flex cracking resistance | Tear resistance | Impact resistance | Abrasion resistance | Adhesion to metal / ride materials | Compression set | Vibration dampening | Resilience / Rebound | UV resistance |
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| **VMQ** | Silicone rubber | Vinyl Methyl Silicone are well known for their widest temperature range and excellent elongation at break. | Weak resistance to oils and chemical products. Low tensile strength, poor tear and wear resistance. | Food and medical | 1 | Transparent | Good | - 50°C / 250°C<br>-58°F / 450°F | 20 - 90 | 200 - 1500 | 100 - 900 | Poor to Good | Poor to Good | Poor to Good | Poor to Good | Good | Good to Excellent | Fair to good | Good to Excellent | Good to Excellent |
| **NBR** | Nitrile rubber | It is synthetic rubber compound with unique resistances to oil, fuel, and chemicals. The most used rubber with good mechanical properties | Poor flame resistance and UV resistance | Sealing application in manies industries | 1 | Yellow, orange, red tinted | Good | - 35°C / 120°C<br>-30°F / 250°F | 20 - 95 | 200 - 3500 | 350 - 650 | Good to Excellent | Fair to good | Fair to good | Good to Excellent | Good to Excellent | Good to Excellent | Fair to good | Good | Poor to good |
| **NR** | Natural rubber, Rubber Polyisoprene (synthetic) | Non-synthetic NR is extracted from Hevea tree. The synthetic equivalent is polyisoprene (IR). They both have high tensile strength, good abrasion resistance, and are extremely waterproof | Poor resistance to ozone, UV, fuel & oil resistance | Aanti-vibration mounts, drive couplings, tires, springs, bearings, rubber bands | 2 | White, milky latex | Poor | - 45°C / 130°C<br>-49°F / 266°F | 30 - 95 | 500 - 3500 | 300 - 900 | Good to Excellent | Excellent | Good to Excellent | Good to Excellent | Excellent | Excellent | Good to Excellent | Excellent | Poor to fair |
| **EPDM** | Ethylene propylene | Excellent resistance to heat, water and steam, alkali, mild acidic and oxygenated solvents, ozone, and sunlight (UV) | Not resistant to mineral oils, greases and fuels | Construction, automotive, electric devices | 2 | Colors depending on formulation | Poor to good | - 45°C / 150°C<br>-49°F / 300°F | 30 - 90 | 500 - 2500 | 100 - 700 | Fair to good | Good | Very good | Good | Good to Excellent | Poor to Excellent | Fair to good | Fair to good | Excellent |
| **PU (EU or AU)** | Polyester Urethane, Polyether Urethane | Polyurethane elastomer have excellent wear and tear resistance, high tensile strength and high elasticity. | Sensitive to humidity and hot water. Poor compression set, the creep properties and heat resistance | Hydraulic and reciprocating seals, gaskets, diaphragms, hoses, conveyor belts | 4 | Black | Fair to good | - 40°C / 90°C<br>-40°F / 195°F | 35 - 90 | 500 - 6000 | 250 - 900 | Fair to good | Fair to excellent | Good to Excellent | Excellent | Excellent/Good | Poor to good | Fair to good | Poor to good | Good to Excellent |
| **SBR** | Styrene butadiene | It replaces natural rubber (more economically friendly) with excellent abrasion resistance, crack endurance and generally ages well. Good compression set resistance and water resistance. | Poor sunlight and ozone resistance, steam and oil resistance; | Car tyres, shoe soles and heels, drive couplings, automotive parts and mechanical rubber goods | 2 | Colors depending on formulation | Fair to good | - 40°C / 100°C<br>-40°F / 215°F | 30 - 95 | 500 - 3000 | 450 - 600 | Fair to excellent | Good | Excellent | Excellent | Excellent | Good to Excellent | Fair to good | Good | Poor |
| **FKM** | Fluorocarbon, Fluoroelastomer, Viton | High value rubber which provides extraordinary levels of resistance to chemicals, oil, high temperature and UV. | Not recommended for skydrol, amines, esters and ethers | Seals, o-rings, and hoses for a variety of high performance applications | 5 | Depending on formulation: black, white, Brown, green | Fair to good | - 20°C / 210°C<br>- 4°F / 410°F | 50 - 95 | 500 - 2000 | 400 - 500 | Fair to good | Fair to good | Good | Fair to good | Good to Excellent/Fair to good | Good to Excellent | Fair to good | Poor to good | Good to Excellent |