



## Physical and Mechanical Properties of Zinc Diecasting Alloys

| Physical Property  | Category                                 |  |  |                                   |  |  |  |  |  |                                   |  |  |  |
|--|--|--|--|-----------------------------------|--|--|--|--|--|-----------------------------------|--|--|--|
|  | NATURE RUBBER                            | SBR                                      | EPDM                                     | NEOPRENE CR                       | HYPALON® CSM                           | NITRILE NBR                              | ACRYLIC ACM  | VAMAC®   | SANTO-PRENE↑                             | SILICONE Si                       | THERBAN® HNBR                          | VITON® FPM   | FLUORO-SILICONE FSI  |
| HARDNESS RANGE   | 30-95°                                   | 40-95°                                   | 30-85°                                   | 30-90°                            | 40-85°                                 | 40-100°                                  | 50-85°   | 45-90°   | 50-100°                                  | 40-80°                            | 50-95°                                 | 50-95°   | 40-80°   |
| COLORS   | Full Range                               | Full Range                               | Limited Range                            | Full Range                        | Limited Range                          | Limited Range                            | Black  | Limited Range  | Full Range                               | Limited Range                     | Limited Range                          | Limited Range  | Limited Range  |
| HEAT RESISTANCE (°C)<br>Maximum Continuous<br>Maximum Intermittent                         | 70°C<br>105°C                            | 85°C<br>115°C                            | 130°C<br>150°C                           | 95°C<br>125°C                     | 130°C<br>160°C                         | 100°C<br>130°C                           | 150°C<br>160°C   | 150°C<br>160°C   | 110°C<br>115°C                           | 205°C<br>300°C                    | 125°C<br>160°C                         | 205°C<br>300°C   | 180°C<br>200°C   |
| LOW TEMPERATURE RESISTANCE   | -60°C                                    | -55°C                                    | -50°C                                    | -40°C                             | -25°C                                  | -20°C                                    | -20°C  | -40°C  | -40°C                                    | -60<br>(speial grades<br>-80°C)   | -30°C                                  | -20°C  | -60°C  |
| RESISTANCES<br>Oxidation<br>Ozone & Weathering   | Fair<br>Poor                             | Fair<br>Poor                             | Excellent<br>Outstanding                 | Very Good<br>Very Good            | Excellent<br>Outstanding               | Good<br>Fair                             | Excellent<br>Excellent   | Excellent<br>Excellent   | Good<br>Good                             | Excellent<br>Outstanding          | Excellent<br>Very Good                 | Outstanding<br>Outstanding                                   | Excellent<br>Outstanding                                     |
| OIL RESISTANCE<br>*ASTM Oil No.1 @ 20 °C<br>@ 100 °C<br>*ASTM Oil No.3 @ 20 °C<br>@ 100 °C | Poor<br>Unsatisfactory<br>Unsatisfactory | Poor<br>Unsatisfactory<br>Unsatisfactory | Fair<br>Unsatisfactory<br>Unsatisfactory | Excellent<br>Good<br>Good<br>Fair | Excellent<br>Good<br>Excellent<br>Fair | Excellent<br>Good<br>Excellent<br>Good   | Excellent<br>100°C Excellent<br>150°C Excellent<br>Excellent<br>100°C Fair<br>150°C Fair | Excellent<br>100°C Excellent<br>125°C Excellent<br>Excellent<br>100°C Fair<br>125°C Fair | Excellent Fair<br>Fair<br>Fair           | Excellent<br>Good<br>Good<br>Fair | Excellent<br>Excellent<br>Fair<br>Fair | Excellent<br>150°C Excellent<br>Excellent<br>150°C Excellent | Excellent<br>150°C Excellent<br>Excellent<br>150°C Excellent |
| FUEL RESISTANCE<br>*ASTM FUEL B @ 40 °C  | Unsatisfactory                           | Unsatisfactory                           | Unsatisfactory                           | Poor                              | Poor                                   | Fair                                     | Poor   | Unsuitable   | Poor                                     | Unsuitable                        | -                                      | Excellent  | Fair<br>(good at low temps.)                                 |
| SOLVENT RESISTANCE (20 °C)<br>Alcohol<br>Acetone<br>Benzene                                | Good<br>Fair<br>Unsatisfactory           | Good<br>Fair<br>Unsatisfactory           | Good<br>Good<br>Unsatisfactory           | Good<br>Fair<br>Unsatisfactory    | Good<br>Fair<br>Unsatisfactory         | Good<br>Unsatisfactory<br>Unsatisfactory | Good<br>Unsatisfactory<br>Unsatisfactory   | Fair<br>Fair<br>Unsatisfactory   | Good<br>Unsatisfactory<br>Unsatisfactory | Good<br>Fair<br>Unsatisfactory    | Excellent<br>Good<br>Fair              | Good<br>Unsatisfactory<br>Good                               | Good<br>Unsatisfactory<br>Good                               |
| CHEMICAL RESISTANCE<br>Acids<br>Bases  | Fair<br>Good                             | Fair<br>Good                             | Good<br>Good                             | Good<br>Fair                      | Very Good<br>Good                      | Good<br>Fair                             | Poor<br>Poor   | Fair<br>Good   | Good<br>Very Good                        | Fair<br>Fair                      | Good<br>Good                           | Excellent<br>Good  | Good<br>Fair   |
| PHYSICAL STRENGTH  | Excellent                                | Good                                     | Good                                     | Good                              | Good                                   | Good                                     | Good   | Good   | Good                                     | Poor                              | Good                                   | Good   | Poor   |
| COMPRESSION SET  | Good                                     | Good                                     | Good                                     | Fair to Good                      | Fair                                   | Good                                     | Good   | Good   | Fair                                     | Fair                              | Good                                   | Good   | Good   |
| TEAR & ABRASION RESISTANCE   | Excellent                                | Good                                     | Good                                     | Good                              | Good                                   | Good                                     | Good   | Good   | Good                                     | Poor                              | Very Good                              | Good   | Poor   |
| RESILIENCE   | Excellent                                | Good                                     | Very Good                                | Very Good                         | Fair                                   | Good                                     | Poor   | Fair   | Good                                     | Good                              | Fair                                   | Fair   | Fair   |
| PERMABILUTY TO GAS   | Poor                                     | Fairly Low                               | Fairly Low                               | Low                               | Low                                    | Low                                      | Low  | Very Low   | Fairly Low                               | Fairly Low                        | Good                                   | Very Low   | Fairly Low   |



*Delivering Engineered Solutions*

Global Manufacturing Resources | Supply Chain Management

| Physical Property                            | Category      |           |           |                    |              |             |             |        |                            |             |               |                    |                     |
|--|---------------|-----------|-----------|--------------------|--------------|-------------|-------------|--------|----------------------------|-------------|---------------|--------------------|---------------------|
|  | NATURE RUBBER | SBR       | EPDM      | NEOPRENE CR        | HYPALON® CSM | NITRILE NBR | ACRYLIC ACM | VAMAC® | SANTO-PRENE↑               | SILICONE Si | THERBAN® HNBR | VITON® FPM         | FLUORO-SILICONE FSI |
| ELECTRICAL STRENGTH                          | Excellent     | Excellent | Excellent | Good               | Good         | Poor        | Fair        | Good   | Excellent                  | Excellent   | Poor          | Good               | Excellent           |
| FLAME RESISTANCE                             | Poor          | Poor      | Poor      | Self-extinguishing | Good         | Poor        | Poor        | Fair   | Retardent Grades Available | Good        | Poor          | Self-extinguishing | Self-extinguishing  |
| WATER RESISTANCE                             | Very Good     | Good      | Excellent | Good               | Very Good    | Good        | Poor        | Good   | Good                       | Good        | Very Good     | Good               | Good                |
| HARDNESS (SHORE A)                           | 10-100        | 30-100    | 30-90     | 10-90              | -            | 15-100      | 40-90       | -      | -                          | 30-90       | -             | -                  | 50-90               |
| TENSILE BREAK STRENGTH (kg/cm <sup>2</sup> ) | 30-300        | 50-200    | 50-200    | 50-250             | -            | 50-250      | 70-120      | -      | -                          | 40-100      | -             | -                  | 70-200              |
| ELONGATION (%)                               | 100-1000      | 100-800   | 100-800   | 100-1000           | -            | 100-800     | 100-600     | -      | -                          | 50-500      | -             | -                  | 100-500             |