

## Iupital™ F20-73R2

Mitsubishi Engineering-Plastics Corp - Acetal (POM) Copolymer

| General Information                         |                                                                                                                                                                                |                        |                 |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|
| <b>Product Description</b>                  |                                                                                                                                                                                |                        |                 |
| VOC, Low; Viscosity, Medium                 |                                                                                                                                                                                |                        |                 |
| <b>General</b>                              |                                                                                                                                                                                |                        |                 |
| Features                                    | <ul style="list-style-type: none"> <li>Low VOC</li> <li>Medium Viscosity</li> </ul>                                                                                            |                        |                 |
| Uses                                        | <ul style="list-style-type: none"> <li>Automotive Applications</li> <li>Automotive Electronics</li> <li>Electrical/Electronic Applications</li> <li>General Purpose</li> </ul> |                        |                 |
| ASTM & ISO Properties <sup>1</sup>          |                                                                                                                                                                                |                        |                 |
| Physical                                    | Nominal Value                                                                                                                                                                  | Unit                   | Test Method     |
| Density                                     | 1.41                                                                                                                                                                           | g/cm <sup>3</sup>      | ISO 1183        |
| Melt Volume-Flow Rate (MVR) (190°C/2.16 kg) | 7.9                                                                                                                                                                            | cm <sup>3</sup> /10min | ISO 1133        |
| Molding Shrinkage - Flow (3.00 mm)          | 2.0                                                                                                                                                                            | %                      | Internal Method |
| Water Absorption - 60% RH (23°C)            | 0.20                                                                                                                                                                           | %                      | Internal Method |
| Mechanical                                  | Nominal Value                                                                                                                                                                  | Unit                   | Test Method     |
| Tensile Modulus                             | 2900                                                                                                                                                                           | MPa                    | ISO 527-1/1     |
| Tensile Stress (Yield)                      | 63.0                                                                                                                                                                           | MPa                    | ISO 527-2/50    |
| Tensile Strain                              |                                                                                                                                                                                |                        | ISO 527-2/50    |
| Yield                                       | 9.0                                                                                                                                                                            | %                      |                 |
| Break                                       | 30                                                                                                                                                                             | %                      |                 |
| Flexural Modulus <sup>2</sup>               | 2600                                                                                                                                                                           | MPa                    | ISO 178         |
| Flexural Stress <sup>2</sup>                | 89.0                                                                                                                                                                           | MPa                    | ISO 178         |
| Impact                                      | Nominal Value                                                                                                                                                                  | Unit                   | Test Method     |
| Charpy Notched Impact Strength (23°C)       | 7.0                                                                                                                                                                            | kJ/m <sup>2</sup>      | ISO 179         |
| Thermal                                     | Nominal Value                                                                                                                                                                  | Unit                   | Test Method     |
| Deflection Temperature Under Load           |                                                                                                                                                                                |                        |                 |
| 0.45 MPa, Unannealed                        | 156                                                                                                                                                                            | °C                     | ISO 75-2/B      |
| 1.8 MPa, Unannealed                         | 100                                                                                                                                                                            | °C                     | ISO 75-2/A      |
| Melting Temperature                         | 166                                                                                                                                                                            | °C                     | ISO 11357-3     |
| CLTE                                        |                                                                                                                                                                                |                        | ISO 11359-2     |
| Flow                                        | 1.1E-4                                                                                                                                                                         | cm/cm/°C               |                 |
| Transverse                                  | 1.1E-4                                                                                                                                                                         | cm/cm/°C               |                 |
| Electrical                                  | Nominal Value                                                                                                                                                                  | Unit                   | Test Method     |
| Surface Resistivity                         | 1.0E+16                                                                                                                                                                        | ohms                   | IEC 60093       |
| Volume Resistivity                          | 1.0E+14                                                                                                                                                                        | ohms·cm                | IEC 60093       |
| Electric Strength                           |                                                                                                                                                                                |                        | IEC 60243-1     |
| 1.00 mm                                     | 32                                                                                                                                                                             | kV/mm                  |                 |
| 3.00 mm                                     | 19                                                                                                                                                                             | kV/mm                  |                 |



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| Electrical                 | Nominal Value | Unit | Test Method |
|----------------------------|---------------|------|-------------|
| Dielectric Constant        |               |      | IEC 60250   |
| 1 MHz                      | 3.90          |      |             |
| 100 MHz                    | 3.90          |      |             |
| Dissipation Factor         |               |      | IEC 60250   |
| 1 MHz                      | 7.0E-3        |      |             |
| 100 MHz                    | 2.0E-3        |      |             |
| Comparative Tracking Index | 600           | V    | IEC 60112   |
| Flammability               | Nominal Value | Unit | Test Method |
| Flame Rating (0.8 mm)      | HB            |      | UL 94       |

| Processing Information             |               |      |  |
|------------------------------------|---------------|------|--|
| Injection                          | Nominal Value | Unit |  |
| Drying Temperature - Hot Air Dryer | 80            | °C   |  |
| Drying Time - Hot Air Dryer        | 3.0 to 4.0    | hr   |  |
| Rear Temperature                   | 170           | °C   |  |
| Middle Temperature                 | 180           | °C   |  |
| Front Temperature                  | 190           | °C   |  |
| Nozzle Temperature                 | 180 to 210    | °C   |  |
| Mold Temperature                   | 60 to 80      | °C   |  |
| Injection Pressure                 | 50.0 to 100   | MPa  |  |
| Injection Rate                     | Moderate      |      |  |
| Screw Speed                        | 80 to 120     | rpm  |  |

