

## Iupital™ F20-EW

Mitsubishi Engineering-Plastics Corp - Acetal (POM) Copolymer

| General Information                                 |                                                                                                               |                                                                                                                   |                 |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Product Description</b>                          |                                                                                                               |                                                                                                                   |                 |
| Drinking water standard acquired; Viscosity, Medium |                                                                                                               |                                                                                                                   |                 |
| <b>General</b>                                      |                                                                                                               |                                                                                                                   |                 |
| Features                                            | <ul style="list-style-type: none"> <li>• Drinking Water Contact Acceptable</li> </ul>                         | <ul style="list-style-type: none"> <li>• Medium Viscosity</li> </ul>                                              |                 |
| Uses                                                | <ul style="list-style-type: none"> <li>• Automotive Applications</li> <li>• Automotive Electronics</li> </ul> | <ul style="list-style-type: none"> <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)         | 7.7                                                                                                           | cm <sup>3</sup> /10min                                                                                            | ISO 1133        |
| Molding Shrinkage - Flow (3.00 mm)                  | 2.0                                                                                                           | %                                                                                                                 | Internal Method |
| Water Absorption - 60% RH (23°C)                    | 0.22                                                                                                          | %                                                                                                                 | Internal Method |
| Mechanical                                          | Nominal Value                                                                                                 | Unit                                                                                                              | Test Method     |
| Tensile Modulus                                     | 2900                                                                                                          | MPa                                                                                                               | ISO 527-1/1     |
| Tensile Stress (Yield)                              | 64.0                                                                                                          | MPa                                                                                                               | ISO 527-2/50    |
| Tensile Strain                                      |                                                                                                               |                                                                                                                   | ISO 527-2/50    |
| Yield                                               | 8.5                                                                                                           | %                                                                                                                 |                 |
| Break                                               | 30                                                                                                            | %                                                                                                                 |                 |
| Flexural Modulus <sup>2</sup>                       | 2600                                                                                                          | MPa                                                                                                               | ISO 178         |
| Flexural Stress <sup>2</sup>                        | 90.0                                                                                                          | MPa                                                                                                               | ISO 178         |
| Impact                                              | Nominal Value                                                                                                 | Unit                                                                                                              | Test Method     |
| Charpy Notched Impact Strength (23°C)               | 7.0                                                                                                           | kJ/m <sup>2</sup>                                                                                                 | ISO 179         |
| Charpy Unnotched Impact Strength (23°C)             | 250                                                                                                           | kJ/m <sup>2</sup>                                                                                                 | ISO 179         |
| Thermal                                             | Nominal Value                                                                                                 | Unit                                                                                                              | Test Method     |
| Deflection Temperature Under Load                   |                                                                                                               |                                                                                                                   | ISO 75-2/A      |
| 1.8 MPa, Unannealed                                 | 100                                                                                                           | °C                                                                                                                |                 |
| 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                                                                                                          |                 |
| 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                                                                                                                |                 |



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| Injection          | Nominal Value | Unit |
|--------------------|---------------|------|
| 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  |

