

## Cycoloy\* Resin CY9650

### Asia Pacific: COMMERCIAL

PC+ABS, High Impact and High Flow, ductility at low temperature, excellent properties retention after Hydrolytic and Heat Aging

| TYPICAL PROPERTIES <sup>1</sup>              | TYPICAL VALUE | UNIT                | STANDARD    |
|----------------------------------------------|---------------|---------------------|-------------|
| <b>MECHANICAL</b>                            |               |                     |             |
| Tensile Stress, yld, Type I, 50 mm/min       | 550           | kgf/cm <sup>2</sup> | ASTM D 638  |
| Tensile Stress, brk, Type I, 50 mm/min       | 540           | kgf/cm <sup>2</sup> | ASTM D 638  |
| Tensile Strain, yld, Type I, 50 mm/min       | 4.5           | %                   | ASTM D 638  |
| Tensile Strain, brk, Type I, 50 mm/min       | 120           | %                   | ASTM D 638  |
| Tensile Modulus, 5 mm/min                    | 23400         | kgf/cm <sup>2</sup> | ASTM D 638  |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 900           | kgf/cm <sup>2</sup> | ASTM D 790  |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 23400         | kgf/cm <sup>2</sup> | ASTM D 790  |
| Tensile Stress, yield, 50 mm/min             | 54            | MPa                 | ISO 527     |
| Tensile Stress, break, 50 mm/min             | 53            | MPa                 | ISO 527     |
| Tensile Strain, yield, 50 mm/min             | 4.5           | %                   | ISO 527     |
| Tensile Strain, break, 50 mm/min             | 120           | %                   | ISO 527     |
| Tensile Modulus, 1 mm/min                    | 2250          | MPa                 | ISO 527     |
| Flexural Stress, yield, 2 mm/min             | 82            | MPa                 | ISO 178     |
| Flexural Modulus, 2 mm/min                   | 2200          | MPa                 | ISO 178     |
| <b>IMPACT</b>                                |               |                     |             |
| Izod Impact, notched, 23°C                   | 60            | cm-kgf/cm           | ASTM D 256  |
| Izod Impact, notched, -30°C                  | 43            | cm-kgf/cm           | ASTM D 256  |
| Instrumented Impact Total Energy, 23°C       | 560           | cm-kgf              | ASTM D 3763 |
| Instrumented Impact Total Energy, -30°C      | 683           | cm-kgf              | ASTM D 3763 |
| Izod Impact, notched 80*10*4 +23°C           | 50            | kJ/m <sup>2</sup>   | ISO 180/1A  |
| Izod Impact, notched 80*10*4 -30°C           | 30            | kJ/m <sup>2</sup>   | ISO 180/1A  |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm   | 55            | kJ/m <sup>2</sup>   | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm  | 30            | kJ/m <sup>2</sup>   | ISO 179/1eA |



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| <b>IMPACT</b>                                        |               |                         |                |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm          | 30            | kJ/m <sup>2</sup>       | ISO 179/1eA    |
| <b>THERMAL</b>                                       |               |                         |                |
| Vicat Softening Temp, Rate B/50                      | 126           | °C                      | ASTM D 1525    |
| HDT, 1.82 MPa, 3.2mm, unannealed                     | 107           | °C                      | ASTM D 648     |
| CTE, -40°C to 40°C, flow                             | 7.E-05        | 1/°C                    | ASTM E 831     |
| CTE, -40°C to 40°C, xflow                            | 7.E-05        | 1/°C                    | ASTM E 831     |
| Thermal Conductivity                                 | 0.2           | W/m-°C                  | ISO 8302       |
| CTE, -40°C to 40°C, flow                             | 8.E-05        | 1/°C                    | ISO 11359-2    |
| CTE, -40°C to 40°C, xflow                            | 8.E-05        | 1/°C                    | ISO 11359-2    |
| Ball Pressure Test, 75°C +/- 2°C                     | Pass          | -                       | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/50                      | 126           | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/120                     | 127           | °C                      | ISO 306        |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm               | 126           | °C                      | ISO 75/Bf      |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm                | 105           | °C                      | ISO 75/Af      |
| Relative Temp Index, Elec                            | 60            | °C                      | UL 746B        |
| Relative Temp Index, Mech w/impact                   | 60            | °C                      | UL 746B        |
| Relative Temp Index, Mech w/o impact                 | 60            | °C                      | UL 746B        |
| <b>PHYSICAL</b>                                      |               |                         |                |
| Specific Gravity                                     | 1.14          | -                       | ASTM D 792     |
| Mold Shrinkage, flow, 3.2 mm                         | 0.5 - 0.7     | %                       | GE Method      |
| Mold Shrinkage, xflow, 3.2 mm                        | 0.5 - 0.7     | %                       | GE Method      |
| Melt Flow Rate, 260°C/5.0 kgf                        | 26            | g/10 min                | ASTM D 1238    |
| Density                                              | 1.14          | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/sat)                         | 0.4           | %                       | ISO 62         |
| Moisture Absorption (23°C / 50% RH)                  | 0.15          | %                       | ISO 62         |
| Melt Volume Rate, MVR at 260°C/5.0 kg                | 25            | cm <sup>3</sup> /10 min | ISO 1133       |
| Melt Viscosity, 260°C, 1500 sec-1                    | 170           | Pa-s                    | ISO 11443      |
| <b>ELECTRICAL</b>                                    |               |                         |                |
| Volume Resistivity                                   | >1.E+15       | Ohm-cm                  | IEC 60093      |
| Surface Resistivity, ROA                             | >1.E+15       | Ohm                     | IEC 60093      |
| Dielectric Strength, in oil, 0.8 mm                  | 35            | kV/mm                   | IEC 60243-1    |
| Dielectric Strength, in oil, 1.6 mm                  | 25            | kV/mm                   | IEC 60243-1    |
| Dielectric Strength, in oil, 3.2 mm                  | 17            | kV/mm                   | IEC 60243-1    |
| <b>FLAME CHARACTERISTICS</b>                         |               |                         |                |
| UL Recognized, 94HB Flame Class Rating (3)           | 1.5           | mm                      | UL 94          |
| UL Recognized, 94HB Flame Class Rating 2nd value (3) | 3             | mm                      | UL 94          |



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| PROCESSING PARAMETERS       | TYPICAL VALUE | UNIT |
|-----------------------------|---------------|------|
| <b>Injection Molding</b>    |               |      |
| Drying Temperature          | 95 - 105      | °C   |
| Drying Time                 | 2 - 4         | hrs  |
| Maximum Moisture Content    | 0.02          | %    |
| Melt Temperature            | 260 - 290     | °C   |
| Nozzle Temperature          | 240 - 280     | °C   |
| Front - Zone 3 Temperature  | 250 - 290     | °C   |
| Middle - Zone 2 Temperature | 250 - 290     | °C   |
| Rear - Zone 1 Temperature   | 230 - 260     | °C   |
| Hopper Temperature          | 60 - 80       | °C   |
| Mold Temperature            | 60 - 90       | °C   |



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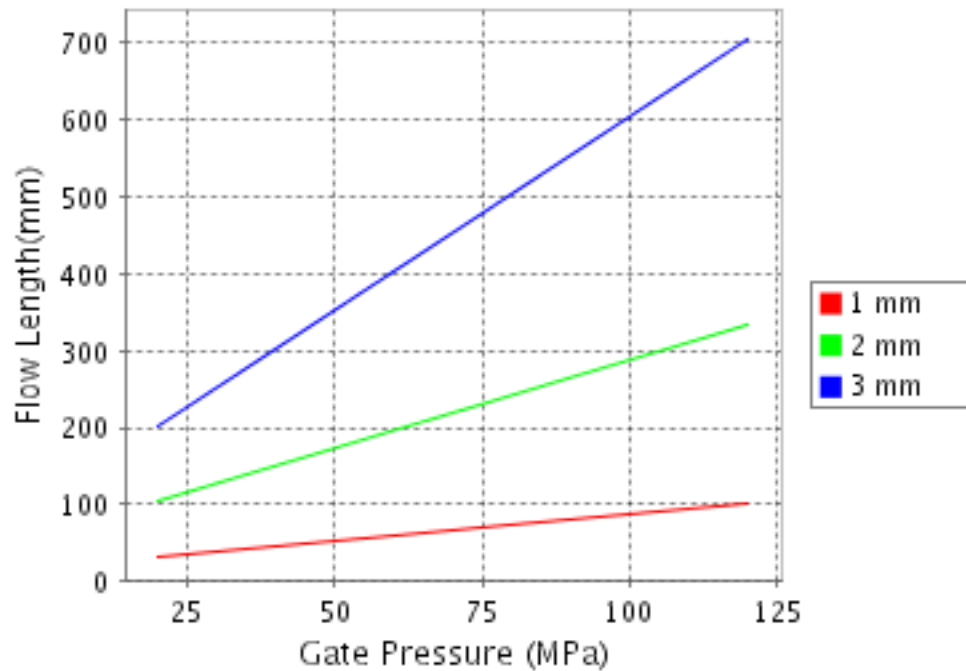
### CALCULATED FLOW LENGTH INDICATION

Moldflow® Radial Flow Analysis

Cycloloy® CY9650

Melt Temperature : 290°C

Mold Temperature : 75°C



**Note:** Technical support is recommended if Gate Pressure is greater than 80 MPa. Contact your local representative.

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