

# CYCOLAC™ RESIN MG94

REGION AMERICAS

## DESCRIPTION

Superior flow, injection molding ABS. Good impact. For thin-wall applications.

## TYPICAL PROPERTY VALUES

Revision 20170816

| PROPERTIES                                   | TYPICAL VALUES | UNITS             | TEST METHODS |
|----------------------------------------------|----------------|-------------------|--------------|
| MECHANICAL                                   |                |                   |              |
| Tensile Stress, yld, Type I, 5 mm/min        | 46             | MPa               | ASTM D 638   |
| Tensile Stress, brk, Type I, 5 mm/min        | 35             | MPa               | ASTM D 638   |
| Tensile Strain, yld, Type I, 5 mm/min        | 2              | %                 | ASTM D 638   |
| Tensile Strain, brk, Type I, 5 mm/min        | 18             | %                 | ASTM D 638   |
| Tensile Modulus, 5 mm/min                    | 2480           | MPa               | ASTM D 638   |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 79             | MPa               | ASTM D 790   |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 2620           | MPa               | ASTM D 790   |
| Hardness, Rockwell R                         | 113            | -                 | ASTM D 785   |
| Tensile Stress, yield, 50 mm/min             | 46             | MPa               | ISO 527      |
| Tensile Stress, break, 50 mm/min             | 35             | MPa               | ISO 527      |
| Tensile Strain, yield, 50 mm/min             | 2.3            | %                 | ISO 527      |
| Tensile Strain, break, 50 mm/min             | 40             | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                    | 2450           | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min             | 70             | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                   | 2500           | MPa               | ISO 178      |
| IMPACT                                       |                |                   |              |
| Izod Impact, notched, 23°C                   | 240            | J/m               | ASTM D 256   |
| Izod Impact, notched, -30°C                  | 80             | J/m               | ASTM D 256   |
| Instrumented Impact Total Energy, 23°C       | 21             | J                 | ASTM D 3763  |
| Instrumented Impact Total Energy, -30°C      | 5              | J                 | ASTM D 3763  |
| Izod Impact, notched 80*10*4 +23°C           | 16             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80*10*4 -30°C           | 7              | kJ/m <sup>2</sup> | ISO 180/1A   |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm   | 18             | kJ/m <sup>2</sup> | ISO 179/1eA  |
| THERMAL                                      |                |                   |              |
| Vicat Softening Temp, Rate B/50              | 98             | °C                | ASTM D 1525  |
| HDT, 0.45 MPa, 3.2 mm, unannealed            | 95             | °C                | ASTM D 648   |
| HDT, 1.82 MPa, 3.2mm, unannealed             | 82             | °C                | ASTM D 648   |



| PROPERTIES                                 | TYPICAL VALUES | UNITS    | TEST METHODS |
|--------------------------------------------|----------------|----------|--------------|
| CTE, -40°C to 40°C, flow                   | 8.82E-05       | 1/°C     | ASTM E 831   |
| CTE, -40°C to 40°C, xflow                  | 8.46E-05       | 1/°C     | ASTM E 831   |
| CTE, -40°C to 40°C, flow                   | 8.82E-05       | 1/°C     | ISO 11359-2  |
| CTE, -40°C to 40°C, xflow                  | 8.46E-05       | 1/°C     | ISO 11359-2  |
| Vicat Softening Temp, Rate B/50            | 98             | °C       | ISO 306      |
| Vicat Softening Temp, Rate B/120           | 100            | °C       | ISO 306      |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm    | 89             | °C       | ISO 75/Be    |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm    | 76             | °C       | ISO 75/Ae    |
| 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      |
| PHYSICAL                                   |                |          |              |
| Specific Gravity                           | 1.05           | -        | ASTM D 792   |
| Mold Shrinkage, flow, 3.2 mm (5)           | 0.5 – 0.8      | %        | SABIC method |
| Melt Flow Rate, 230°C/3.8 kgf              | 11.7           | g/10 min | ASTM D 1238  |
| Melt Viscosity, 240°C, 1000 sec-1          | 1720           | Poise    | ASTM D 3825  |
| Density                                    | 1.04           | g/cm³    | ISO 1183     |
| Melt Flow Rate, 220°C/5.0 kg               | 12             | g/10 min | ISO 1133     |
| Melt Flow Rate, 220°C/10.0 kg              | 42             | g/10 min | ISO 1133     |
| FLAME CHARACTERISTICS                      |                |          |              |
| UL Recognized, 94HB Flame Class Rating (3) | 1.52           | mm       | UL 94        |
| INJECTION MOLDING                          |                |          |              |
| Drying Temperature                         | 80 – 90        | °C       |              |
| Drying Time                                | 2 – 4          | hrs      |              |
| Drying Time (Cumulative)                   | 8              | hrs      |              |
| Maximum Moisture Content                   | 0.1            | %        |              |
| Melt Temperature                           | 205 – 245      | °C       |              |
| Nozzle Temperature                         | 205 – 245      | °C       |              |
| Front - Zone 3 Temperature                 | 205 – 225      | °C       |              |
| Middle - Zone 2 Temperature                | 200 – 210      | °C       |              |
| Rear - Zone 1 Temperature                  | 190 – 200      | °C       |              |
| Mold Temperature                           | 50 – 70        | °C       |              |
| Back Pressure                              | 0.3 – 0.7      | MPa      |              |
| Screw Speed                                | 30 – 60        | rpm      |              |
| Shot to Cylinder Size                      | 50 – 70        | %        |              |
| Vent Depth                                 | 0.038 – 0.051  | mm       |              |





## DISCLAIMER

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