

## Cycloloy\* Resin CX1440

Americas: COMMERCIAL

CYCOLOY CX1440 is a general purpose PC+ABS blend specially developed for thin wall applications requiring weld line strength and high flow with a good balance of properties

### Property

| TYPICAL PROPERTIES <sup>(1)</sup>            |         |                   |              |
|--|---------|-------------------|--------------|
| MECHANICAL                                   | Value   | Unit              | Standard     |
| Tensile Stress, yld, Type I, 50 mm/min       | 50      | MPa               | ASTM D 638   |
| Tensile Stress, brk, Type I, 50 mm/min       | 45      | MPa               | ASTM D 638   |
| Tensile Strain, yld, Type I, 50 mm/min       | 5       | %                 | ASTM D 638   |
| Tensile Strain, brk, Type I, 50 mm/min       | 45      | %                 | ASTM D 638   |
| Tensile Modulus, 5 mm/min                    | 2400    | MPa               | ASTM D 638   |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 80      | MPa               | ASTM D 790   |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 2300    | MPa               | ASTM D 790   |
| Taber Abrasion, CS-17, 1 kg                  | 70      | mg/1000cy         | SABIC Method |
| Tensile Stress, yield, 5 mm/min              | 45      | MPa               | ISO 527      |
| Tensile Stress, break, 5 mm/min              | 45      | MPa               | ISO 527      |
| Tensile Stress, yield, 50 mm/min             | 50      | MPa               | ISO 527      |
| Tensile Stress, break, 50 mm/min             | 45      | MPa               | ISO 527      |
| Tensile Strain, yield, 5 mm/min              | 5       | %                 | ISO 527      |
| Tensile Strain, break, 5 mm/min              | 60      | %                 | ISO 527      |
| Tensile Strain, yield, 50 mm/min             | 5       | %                 | ISO 527      |
| Tensile Strain, break, 50 mm/min             | 50      | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                    | 2400    | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min             | 80      | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                   | 2300    | MPa               | ISO 178      |
| Hardness, Rockwell L                         | 90      | -                 | ISO 2039-2   |
| IMPACT                                       | Value   | Unit              | Standard     |
| Izod Impact, notched, 23°C                   | 450     | J/m               | ASTM D 256   |
| Izod Impact, notched, -30°C                  | 250     | J/m               | ASTM D 256   |
| Izod Impact, double-gated, 23°C              | 100     | J/m               | SABIC Method |
| Multiaxial Impact                            | 70      | J                 | ISO 6603     |
| Instrumented Impact Total Energy, 23°C       | 55      | J                 | ASTM D 3763  |
| Instrumented Impact Total Energy, -30°C      | 25      | J                 | ASTM D 3763  |
| Izod Impact, notched 80*10*3 +23°C           | 40      | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80*10*3 -30°C           | 20      | kJ/m <sup>2</sup> | ISO 180/1A   |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm   | 40      | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm  | 20      | kJ/m <sup>2</sup> | ISO 179/1eA  |
| THERMAL                                      | Value   | Unit              | Standard     |
| Vicat Softening Temp, Rate B/50              | 113     | °C                | ASTM D 1525  |
| HDT, 0.45 MPa, 3.2 mm, unannealed            | 115     | °C                | ASTM D 648   |
| HDT, 1.82 MPa, 3.2mm, unannealed             | 95      | °C                | ASTM D 648   |
| CTE, -40°C to 40°C, flow                     | 7.5E-05 | 1/°C              | ASTM E 831   |
| CTE, -40°C to 40°C, xflow                    | 7.7E-05 | 1/°C              | ASTM E 831   |
| Thermal Conductivity                         | 0.2     | W/m-°C            | ASTM C 177   |

|  |              |                         |                 |
|--|--------------|-------------------------|-----------------|
| Thermal Conductivity                                 | 0.2          | W/m-°C                  | ISO 8302        |
| CTE, -40°C to 40°C, flow                             | 7.1E-05      | 1/°C                    | ISO 11359-2     |
| CTE, -40°C to 40°C, xflow                            | 7.3E-05      | 1/°C                    | ISO 11359-2     |
| Ball Pressure Test, 75°C +/- 2°C                     | passes       | -                       | IEC 60695-10-2  |
| Ball Pressure Test, approximate maximum              | 100          | °C                      | IEC 60695-10-2  |
| Vicat Softening Temp, Rate B/50                      | 114          | °C                      | ISO 306         |
| Vicat Softening Temp, Rate B/120                     | 116          | °C                      | ISO 306         |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm              | 117          | °C                      | ISO 75/Be       |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm              | 95           | °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         |
| <b>PHYSICAL</b>                                      | <b>Value</b> | <b>Unit</b>             | <b>Standard</b> |
| Specific Gravity                                     | 1.15         | -                       | ASTM D 792      |
| Mold Shrinkage, flow, 3.2 mm                         | 0.4 - 0.6    | %                       | SABIC Method    |
| Melt Flow Rate, 260°C/5.0 kgf                        | 22           | g/10 min                | ASTM D 1238     |
| Density  | 1.15         | g/cm <sup>3</sup>       | ISO 1183        |
| Water Absorption, (23°C/sat)                         | 0.6          | %                       | ISO 62          |
| Moisture Absorption (23°C / 50% RH)                  | 0.16         | %                       | ISO 62          |
| Melt Volume Rate, MVR at 260°C/5.0 kg                | 20           | cm <sup>3</sup> /10 min | ISO 1133        |
| <b>ELECTRICAL</b>                                    | <b>Value</b> | <b>Unit</b>             | <b>Standard</b> |
| Volume Resistivity                                   | > 1.E+15     | Ohm-cm                  | ASTM D 257      |
| Surface Resistivity                                  | > 1.E+15     | Ohm                     | ASTM D 257      |
| Dielectric Strength, in oil, 0.8 mm                  | 36           | kV/mm                   | IEC 60243-1     |
| Dielectric Strength, in oil, 1.6 mm                  | 27           | kV/mm                   | IEC 60243-1     |
| Relative Permittivity, 50/60 Hz                      | 2.9          | -                       | IEC 60250       |
| Relative Permittivity, 1 MHz                         | 2.7          | -                       | IEC 60250       |
| Dissipation Factor, 50/60 Hz                         | 0.01         | -                       | IEC 60250       |
| Dissipation Factor, 1 MHz                            | 0.011        | -                       | IEC 60250       |
| <b>FLAME CHARACTERISTICS</b>                         | <b>Value</b> | <b>Unit</b>             | <b>Standard</b> |
| UL Recognized, 94HB Flame Class Rating (3)           | 0.75         | mm                      | UL 94           |
| UL Recognized, 94HB Flame Class Rating 2nd value (3) | 3            | mm                      | UL 94           |
| Glow Wire Flammability Index 650°C, passes at        | 3.2          | mm                      | IEC 60695-2-12  |

Source GMD, last updated:11/04/2004

## Processing

| Parameter                   | 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   |

Source GMD, last updated:11/04/2004

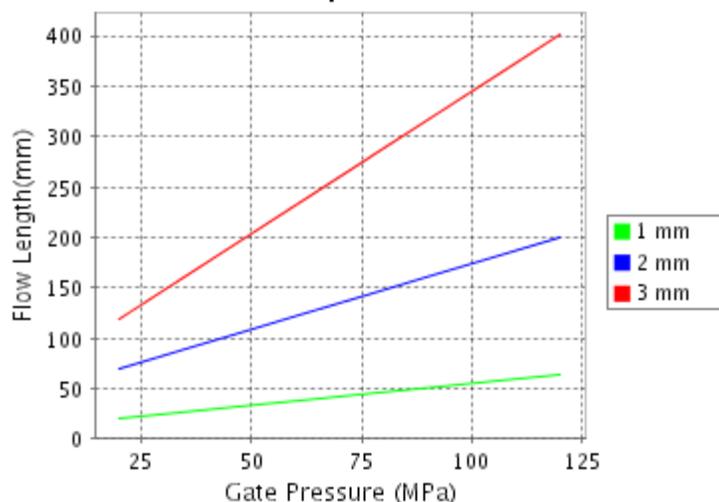
## CALCULATED FLOW LENGTH INDICATION

Moldflow® Radial Flow Analysis

Cycloy® C4210

Melt Temperature : 260°C

Mold Temperature : 65°C



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

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THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. Not to be used for part or tool design.

(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(4) Internal measurements according to UL standards.

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