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# ZELUX® M POLYCARBONATE

Zelux M polycarbonate is an engineering plastic with excellent dimensional stability and good strength and stiffness over a wide range of service temperatures. Zelux is often used for structural applications when clarity and impact strength are essential including lenses, manifolds, site glasses, and machine guards. Zelux is used for a wide variety of electrical applications since it has low moisture absorption, good insulating properties, and an excellent flammability rating. Zelux is easy to fabricate, paint, and glue. Extruded Zelux M is made from FDA compliant resin. Compression molded Zelux M sheet is formulated with UV stabilizers to enhance its resistance to yellowing and property loss when exposed to UV radiation.

The following physical property information is based on typical values of the base polycarbonate resin.

## **Applications Include:**

- Viewing windows
- Impact shields
- Fluid handling components
- Manifolds
- Housings and covers

## Advantages of Zelux M:

- Excellent impact resistanceExcellent dimensional stability
- Low moisture absorption
- Easy to machine
- Good strength and stiffness over a wide range of service temperatures
- Good electrical insulating properties
- Easy to fabricate, paint and glue
- Excellent flammability rating,
  UL Yellow card file E240206

### **Manufacturing Capabilities:**

- **Rod:** <sup>1</sup>/<sub>8</sub>" to 15" dia.
- Sheet: <sup>3</sup>/<sub>8</sub>" to 6" thick

### **Colors/Grades:**

- Zelux M stress relieved machine grade (natural and black)
- Glass-filled sheet (10%, 20%, 30% and 40% in black)

In addition to our standard capabilities, Westlake also has the ability to process custom resins in various sizes and colors with some exceptions.

| Property   | Units                | Test Standard          | Zelux M<br>(extruded rod) | Zelux M<br>(compression molded<br>sheet) |
|--|----------------------|------------------------|---------------------------|--|
| Mechanical   |                      |                        |                           |  |
| Flexural Modulus                                   | psi                  | ASTM D790              | 338,000                   | 328,000                                  |
| Flexural Strength @yield                           | psi                  | ASTM D790              | 14,100                    | 13,100                                   |
| Hardness<br>Rockwell M<br>Rockwell R               | M Scale<br>R Scale   | ASTM D785              | 70<br>118                 | 77                                       |
| Izod Impact Strength<br>Notched                    | ft•lbs/in            | ASTM D256              | 17.0                      | 17.0                                     |
| Tensile Elongation<br>@break<br>@yield             | %<br>%               | ASTM D638<br>ASTM D638 | 140<br>7.0                | 140<br>6                                 |
| Tensile Strength<br>@break<br>@yield               | psi<br>psi           | ASTM D638<br>ASTM D638 | 9,860<br>8,990            | 11,600<br>8,990                          |
| Thermal  |                      |                        |                           |  |
| Coefficient of Thermal Expansion                   | in/in/°F             | ASTM D696              | 3.8x10 <sup>-5</sup>      | 3.8x10 <sup>-5</sup>                     |
| Flammability Rating @11.5mm *                      | _                    | UL94                   | _                         | V-0                                      |
| Heat Deflection Temperature<br>@66 psi<br>@264 psi | °F<br>°F             | ASTM D648<br>ASTM D648 | 275<br>255                | 288<br>268                               |
| Thermal Conductivity                               | (BTU•in)/(hr•ft²•°F) | ASTM C177              | 1.3                       |  |
| Electrical   |                      |                        |                           |  |
| Dielectric Constant<br>@60Hz<br>@1MHz              | _                    | ASTM D150<br>ASTM D150 | 3.17<br>2.96              | 2.95<br>2.90                             |
| Dielectric Strength                                | V/mil                | ASTM D149              | 380                       | 760                                      |
| Volume Resistivity                                 | ohm•cm               | ASTM D257              | >1.0x10 <sup>17</sup>     | >1.0x10 <sup>17</sup>                    |
| Optical  |                      |                        |                           |  |
| Haze   | %                    | ASTM D1003             | 1.0                       | 0.5-2.0                                  |
| Other  |                      |                        |                           |  |
| Specific Gravity                                   | _                    | ASTM D792              | 1.20                      | 1.20                                     |
| Water Absorption<br>@24 hours<br>@Equilibrium      | %<br>%               | ASTM D570<br>ASTM D570 | 0.15<br>0.35              | 0.2                                      |

\* Westlake Plastics UL Yellow Card file E240206

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