



# Excelon PC Tubing

Clear, strong, impact resistant, polycarbonate tubing

## Typical Properties

| PROPERTY  | ASTM Method                | EXCELON PC   |                     |  |  |
|---|----------------------------|--|---------------------|--|--|
| Specific Gravity  | D 792                      | 1.20   |                     |  |  |
| Refractive Index at 25°C  | —                          | 1.586  |                     |  |  |
| Rockwell Hardness   | D 785                      | Scale M 73-78<br>Scale R 112-125   |                     |  |  |
| Abrasion resistance,<br>Taber abraser with CS-17 wheel                            | D 1044                     | 10 mg/1000 cycles  |                     |  |  |
| Impact strength, notched Izod,<br>1/8" specimen, ft.-lb./in. of notch             | D 256                      | 15-17  |                     |  |  |
| Impact strength, unnotched Izod,<br>1/8" specimen, ft.-lb./in.                    | D 256                      | >60  |                     |  |  |
| Tensile-impact, ft.-lbs./in. <sup>2</sup>   | D 1822                     | 250  |                     |  |  |
| Tensile-yield strength, psi   | D 638                      | 7,000-9,000  |                     |  |  |
| Tensile-ultimate strength, psi  | D 638                      | 9,000-11,500   |                     |  |  |
| Tensile modulus, psi  | D 638                      | 300,000-345,000  |                     |  |  |
| Elongation  | D 638                      | 100-130  |                     |  |  |
| Compressive strength, psi   | D 695                      | 12,500   |                     |  |  |
| Compressive modulus, psi  | D 695                      | 345,000  |                     |  |  |
| Flexural strength, psi  | D 790                      | 12,000-12,700  |                     |  |  |
| Flexural modulus, psi   | D 695                      | 320,000-350,000  |                     |  |  |
| Shear-yield strength, psi   | D 732                      | 6,000  |                     |  |  |
| Shear-ultimate strength, psi  | D 732                      | 10,000   |                     |  |  |
| Light transmission (1/8-inch thick disc)  | —                          | 88-90%   |                     |  |  |
| Water-vapor permeability<br>cm <sup>3</sup> /STP/mm/sec./cm <sup>2</sup> /cm HG   | —                          | 14.0 X 10 <sup>13</sup>  |                     |  |  |
| Modulus of rigidity, psi  | —                          | 116,000  |                     |  |  |
| Deformation under load,<br>4,000 psi 77°F   | D 621                      | 0.2%   |                     |  |  |
| 158°F   |                            | 0.3%   |                     |  |  |
| Water absorption, 24 hour<br>submersion<br>equilibrium 73°F                       | D 570                      | 0.15%<br>0.35%   |                     |  |  |
| Heat-deflection temperature °F  | D 648                      | 264 psi: 275-285   |                     |  |  |
| Thermal conductivity, cal./sec./cm <sup>2</sup> /°C/cm                            | —                          | 4.6 X 10 <sup>-4</sup>   |                     |  |  |
| Coefficient of linear-thermal expansion, in./in./°F<br>- 30°C to 30°C, in./in./°C | D 696                      | 3.75 X 10 <sup>-5</sup>  |                     |  |  |
| Flammability  | D 635                      | 6.6 X 10 <sup>-5</sup>   |                     |  |  |
| Brittle temperature   | D 746                      | Self-extinguishing<br>< - 215°C  |                     |  |  |
| Dielectric constant   |                            | - 30°C    - 3°C    23°C    100°C    125°C  |                     |  |  |
| 60 cycles   | D 150                      | 3.12    3.14    2.99    3.15    3.13   |                     |  |  |
| 10 <sup>6</sup> cycles  | D 150                      |  | 2.95                |  |  |
| Power factor  |                            |  |                     |  |  |
| 60 cycles   | D 150                      | 0.005    0.0004    0.0009    0.0009    0.0011  |                     |  |  |
| 10 <sup>6</sup> cycles  |                            |  | 0.010               |  |  |
| Volume resistivity, ohm-cm  | —                          | >10 <sup>17</sup> >10 <sup>17</sup> 2.1 X 10 <sup>16</sup> 2.1 X 10 <sup>15</sup> 2.7 X 10 <sup>14</sup> |                     |  |  |
| Arc resistance,<br>stainless-steel strip electrodes<br>tungsten electrodes        | D 495                      |  | 10-12 sec<br>30 sec |  |  |
|   |                            | 25°C   | 100°C               |  |  |
| Dielectric strength, short time   | 400 v. / mil at 125.0 mils | (The step-by-step values are essentially the same as the short time values for the 125-mil pieces)       |                     |  |  |

Data shown are average values and should not be used for specifications.

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