

## General Electrical Properties

|               | Cable Type         | Impedance (ohms)   | Capacitance (pF/foot) | Velocity (%) | Dielectric Constant | Time Delay (nS/foot) |
|---------------|--------------------|--------------------|-----------------------|--------------|---------------------|----------------------|
| <b>50 OHM</b> | Solid Polyethylene | 50                 | 30.8                  | 65.9         | 2.30                | 1.54                 |
|               | Foam PE            | 50                 | 24.5                  | 83.0         | 1.45                | 1.22                 |
|               | Foam PE            | 50                 | 24.2                  | 84.0         | 1.42                | 1.21                 |
|               | Foam PE            | 50                 | 23.9                  | 85.0         | 1.38                | 1.20                 |
|               | Foam PE            | 50                 | 23.6                  | 86.0         | 1.35                | 1.18                 |
|               | Foam PE            | 50                 | 23.3                  | 87.0         | 1.32                | 1.17                 |
|               | Foam PE            | 50                 | 23.1                  | 88.0         | 1.29                | 1.16                 |
|               | Solid PTFE         | 50                 | 29.2                  | 69.5         | 2.07                | 1.46                 |
|               | Tape PTFE          | 50                 | 28.6                  | 71.0         | 1.98                | 1.43                 |
|               | Low Density PTFE   | 50                 | 26.7                  | 76.0         | 1.73                | 1.34                 |
|               | Low Density PTFE   | 50                 | 25.4                  | 80.0         | 1.56                | 1.27                 |
| <b>75 OHM</b> | Solid Polyethylene | 75                 | 20.6                  | 65.9         | 2.30                | 1.54                 |
|               | Foam PE            | 75                 | 16.3                  | 83.0         | 1.45                | 1.22                 |
|               | Foam PE            | 75                 | 16.1                  | 84.0         | 1.42                | 1.21                 |
|               | Foam PE            | 75                 | 15.9                  | 85.0         | 1.38                | 1.20                 |
|               | Foam PE            | 75                 | 15.8                  | 86.0         | 1.35                | 1.18                 |
|               | Foam PE            | 75                 | 15.6                  | 87.0         | 1.32                | 1.17                 |
|               | Foam PE            | 75                 | 15.4                  | 88.0         | 1.29                | 1.16                 |
|               | Solid PTFE         | 75                 | 19.5                  | 69.5         | 2.07                | 1.46                 |
|               | Low Density PTFE   | 75                 | 17.8                  | 76.0         | 1.73                | 1.34                 |
|               | Low Density PTFE   | 75                 | 16.9                  | 80.0         | 1.56                | 1.27                 |
|               | <b>MISC</b>        | Solid Polyethylene | 95                    | 16.2         | 65.9                | 2.30                 |
| Foam PE       |                    | 95                 | 12.6                  | 85.0         | 1.38                | 1.20                 |
| Air Spaced PE |                    | 95                 | 12.6                  | 85.0         | 1.38                | 1.20                 |
| Solid PTFE    |                    | 95                 | 15.4                  | 69.5         | 2.07                | 1.46                 |
| Air Spaced PE |                    | 125                | 09.6                  | 85.0         | 1.38                | 1.20                 |
| Air Spaced PE |                    | 185                | 06.5                  | 85.0         | 1.38                | 1.20                 |

## Properties of Wire and Cable Insulating Materials

| Material           | Dielectric Constant | Dissipation Factor | Volume-Resistivity (ohm-cm) | Operating Temperature (Range °C) |
|--------------------|---------------------|--------------------|-----------------------------|----------------------------------|
| PTFE               | 2.07                | 0.0003             | 10 <sup>19th</sup>          | -75 to +250                      |
| Polyethylene       | 2.3                 | 0.0003             | 10 <sup>16th</sup>          | -65 to +80                       |
| Foam Polyethylene  | 1.29 - 1.64         | 0.0001             | 10 <sup>12th</sup>          | -65 to +100                      |
| Polyvinylchloride  | 3.0 - 8.0           | 0.07 - 0.16        | 2 x 10 <sup>12th</sup>      | -50 to +105                      |
| Polyamide          | 3.5 - 4.6           | 0.03 - 0.4         | 4 x 10 <sup>14th</sup>      | -60 to +120                      |
| Silicone Rubber    | 2.1 - 3.5           | 0.007 - 0.016      | 10 <sup>13th</sup>          | -70 to +250                      |
| Ethylene Propylene | 2.24                | 0.00046            | 10 <sup>17th</sup>          | -40 to +105                      |
| FEP                | 2.1                 | 0.0007             | 10 <sup>18th</sup>          | -70 to +200                      |
| Low Density PTFE   | 1.38 - 1.73         | 0.00005            | 10 <sup>19th</sup>          | -75 to +250                      |
| Foam FEP           | 1.45                | 0.0007             | 10 <sup>18th</sup>          | -75 to +200                      |
| Polyimide          | 3.0 - 3.5           | 0.002 - 0.003      | 10 <sup>13th</sup>          | -75 to +300                      |
| PFA                | 2.1                 | 0.001              | 10 <sup>16th</sup>          | -75 to +260                      |
| ETFE               | 2.6                 | 0.005              | 10 <sup>16th</sup>          | -75 to +150                      |
| ECTFE              | 2.5                 | 0.0015             | 10 <sup>16th</sup>          | -65 to +150                      |
| PVDF               | 7.8                 | 0.02               | 10 <sup>14th</sup>          | -75 to +125                      |