

NEWcel \ 'nū – sel \ n

1 : A closed-cell foamed dielectric material specifically designed to reduce dielectric constant and dissipation factor yielding low-capacitance, low-loss, high V.O.P. ultraminiature coaxial, triaxial, and twinaxial cables.

2 : One of many high-performance product offerings from New England Wire Technologies, a world leader in the design and manufacture of specialty wire and cable.

Product Advantages

- ◆ Reduces Attenuation
- ◆ Reduces Cable Size
- ◆ Reduces Capacitance
- ◆ Wide Temperature Range

Technical Information

Air is a near perfect dielectric medium allowing a signal to propagate through it at approximately the speed of light. However, an air dielectric is impractical for use as a cable insulation as it provides no structural integrity. Thus, manufacturers have to resort to using materials with higher dielectric constants (lower propagation velocity) to meet physical requirements.

NEWcel® is the perfect solution. Typical coaxial, triaxial, and twinaxial cables are manufactured using low dielectric constant (2.0 – 2.6) materials that possess inherently better electrical properties than standard insulation material such as PVC. Using highly controlled extrusion processes, these materials are foamed yielding a dielectric medium with a high air concentration. The result of this process is a significantly reduced dielectric constant (1.45 – 1.8) that approaches the nearly ideal properties of air without sacrificing structural integrity. This results in a significant capacitance reduction while providing the customer with the choice of reduced diameter/same attenuation or same diameter/reduced attenuation.

Material Properties				
Property	-B04	-B05	-GX20	-GX16
Temperature Rating	80°C	80°C	150°C	200°C
Dielectric Constant	1.80	1.60	1.60	1.45
Propagation Velocity	74.5%	79.0%	79.0%	82.5%

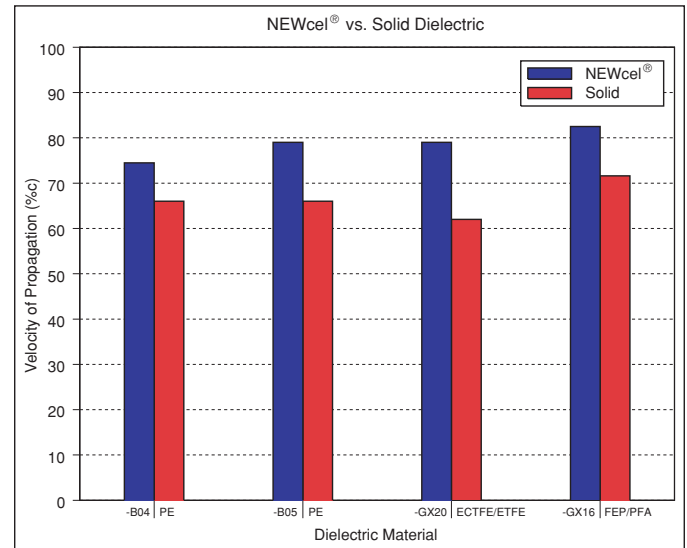


Figure 1: A comparison of the propagation velocity of a signal through NEWcel® and equivalent solid dielectric materials.

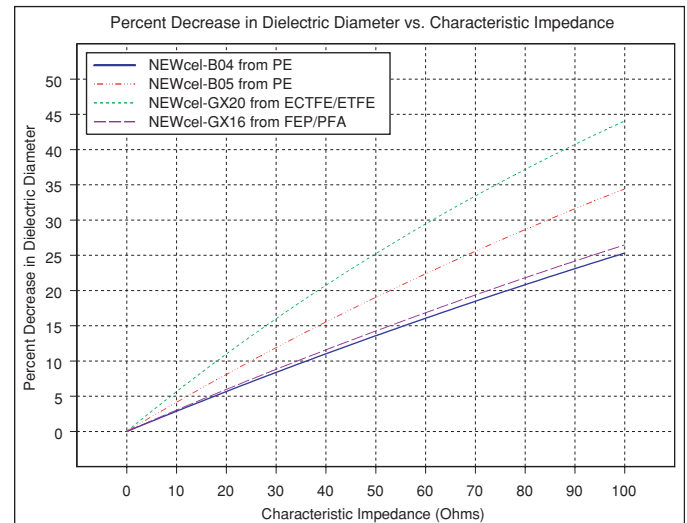


Figure 2: An estimated percent decrease in dielectric diameter resulting from switching to NEWcel® from equivalent solid dielectric materials if the characteristic impedance is constant.

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