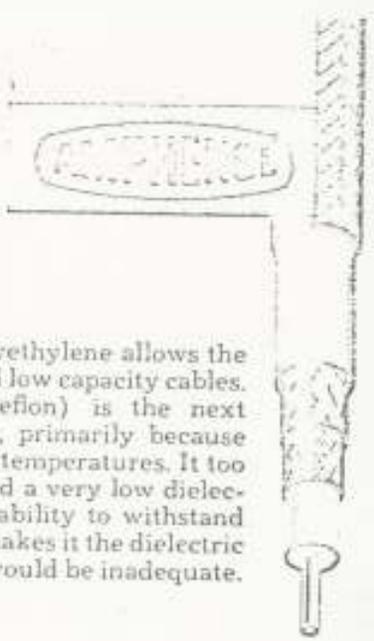


# COAXIAL CABLE DIELECTRICS



Extruded polyethylene is the most commonly used low temperature coaxial cable dielectric. Its low cost, ease of application, flexibility, high dielectric strength and low dielectric constant make it ideally suited for rf applications.

Cellular polyethylene, known by the AMPHENOL trade mark Polyfoam, is another excellent low temperature dielectric. It is formed by expanding polyethylene with millions of bubbles of an inert gas. The low dielectric constant of 1.5 for polyfoam

compared to 2.26 for solid polyethylene allows the design of lower attenuation and low capacity cables.

Polytetrafluoroethylene (Teflon) is the next most popular cable dielectric, primarily because of its ability to withstand high temperatures. It too has high dielectric strength and a very low dielectric constant. In addition, its ability to withstand exposure to gases and liquids makes it the dielectric choice where other materials would be inadequate.

Properties	Polytetrafluoroethylene (Teflon)	Polyethylene
Specific gravity	2.1-2.3	0.92
Specific volume, cu. in. per lb.	13.2-12.1	30.1
Thermal conductivity, 10 <sup>-4</sup> cal. per sec. per sq. cm. per 1° C. per cm.	6	8.0
Volume resistivity, ohm-cm. (50% relative humidity and 23° C.)	10 <sup>11</sup>	> 10 <sup>11</sup>
Dielectric strength, short-time 1/8-in. thickness, volts per mil	480	460
Dielectric strength, step-by-step 1/8-in. thickness, volts per mil	430	420
Dielectric constant, 60 cycles	2.0	2.26
Dielectric constant, 10 <sup>3</sup> cycles	2.0	2.26
Dielectric constant, 10 <sup>6</sup> cycles	2.0	2.26
Dissipation (power) factor, 60 cycles	<0.0002-0.0005	<0.0005
Dissipation (power) factor, 10 <sup>3</sup> cycles	<0.0002-0.0005	<0.0005
Dissipation (power) factor, 10 <sup>6</sup> cycles	<0.0002-0.0005	<0.0005
Water absorption, 24 hr., 1/8 in. thickness, %	0.00	<0.01
Effect of weak acids	None	Resistant
Effect of strong acids	None	Attacked by oxidizing acids.
Effect of weak alkalis	None	Resistant
Effect of strong alkalis	None	Resistant
Effect of organic solvents	None	Soluble in aromatic solvents above 60° C.



# ING COAXIAL CABLES (continued)

Jack Types Described on Page 13

Attenuation and Power Ratings on Page 28

Military Number RC-YU	AMPHENOL Number	Armor O.D.	Jack O.D.	Jack Type	Shields Outer	Shields Inner	Dielectric O.D. & Type	Center Conductor	V.P. %	Cap. Mfd./Fl.	Max. Cont. Volts Rms.	Nom. Imp. Ohms	Connector Series
17	421-101	-	.100	I	-	TC	.060P 7/8063CW	65.9	29.5	1500	50	BNC, Subminax	
118	421-102	-	.075	KEL-F	-	S	.034T 7/385CW	69.5	28.5	1000	50	Subminax	
171A	421-145	-	.105	KEL-F	-	S	.063T 7/385CW	69.5	19.5	1200	75	BNC, Subminax	
100	421-141	-	.141	KEL-F	-	S	.103T 7/385CW	69.5	35.5	650	93	BNC, Subminax, TNC	
100A	421-143	-	.145	KEL-F	-	S	.102T 7/385CW	69.5	15.0	1500	95	BNC, Subminax, TNC	
187	421-106	-	.110	VII	-	S	.063T 7/385CW	69.5	19.5	1200	75	BNC, Subminax	
188	421-105	-	.110	VII	-	S	.060T 7/80675CW	69.5	29.0	1200	50	BNC, Subminax	
195	421-111	-	.155	VII	-	S	.102T 7/385CW	69.5	15.0	1500	95	BNC, Subminax, TNC	
196	421-109	-	.100	VII	-	S	.034T 7/385CW	69.5	28.5	1000	50	Subminax	
200	421-141	-	.745	VI	S	S	.500SST 19/.03785	84.0	26.5	3200	50	LT	
210	421-100	-	.242	V	-	S	.146SST 22SCW	84	13.5	750	93	N, C, TNC, BNC, BR, UHF, PUSH-ON	

Cables with --- numbers are manufactured to specifications other than MIL-C-17

S—Silvered Copper    SCW—Silvered Copperweld    TC—Tinned Copper    TT—Teflon Tape    T—Teflon    SST—Semi-Solid Teflon    CW—Copperweld