

ASTRA® 703/105 PVC TUBING TEST DATA

Class 105°C • For General Purpose Heat-Resistant Applications

UL Recognized Component: Class 105°C, 300 and 600 Volt VW-1 File No. E31622

Canadian Standards Association: File No. 37065

MIL-I-631, Grade C, Form U, Subform Ua, Class I and II, Category 1, ASTM D922 Grade C



DESCRIPTION

ASTRA 703/105 is high heat-resistant, extruded polyvinyl-chloride plastic tubing designed for continuous use in 105°C applications. This material carries the Underwriters Laboratories

recognition and is rated VW-1 by the Laboratories. ASTRA 703/105 PVC tubing is supplied in continuous lengths on spools and in cut pieces.

PERFORMANCE CHARACTERISTICS

Property	Underwriters Laboratories, Inc. Subject 24		MIL-I-631 Grade C Requirements		Typical ASTRA 703/705 Performance
	Conditioning	Requirements	Conditioning	Requirements	
Dielectric Strength – Dry – Wet			C-96/23/50 C-96/23/96	Min. 800V / mil Min. 85% of Dry	1180V / mil 94% of Dry
Shelf Aged	60 days @ 23°C	Min. 2500V for 1 min and then increase to breakdown			Exceeds requirements — Avg. Dielectric Breakdown 15,000 to 30,000V
Oven Aged	60 days @ 133°C	Min. 50% of shelf aged			Avg. 88%
Dielectric Constant – Dry – Wet			C-96/23/50 C-96/23/96	Maximum 7.0 Maximum 8.0	2.96 3.71
Dissipation Factor – Dry Dissipation Factor – Wet			C-96/23/50 C-96/23/96	Maximum .14 Maximum .16	.050 .059
Insulation Resistance	Tap water @ 60°F	Mins. from 2.11 to 0.059 megaohms/ M ft. from #24 to 2-1/2"			Exceeds requirements
Volume Resistivity			None	Min. 1x10 ¹⁰ ohm-cm	308 x 10 ¹⁰
Tensile Strength Unaged Shelf Aged Oven Aged	60 days @ 23°C 60 days @ 113°C	Min. 1500 psi Min. 70% of shelf aged	C-96/23/50	Min. 1800 psi	3480 psi Over 3,000 psi 90 - 95%
Tensile Elongation Unaged Shelf Aged Oven Aged	60 days @ 23°C 60 days @ 113°C	100% Minimum Min. 70% of shelf aged	C-96/23/50 400 h 130°C	Min. 200% Max. 350% Max. 35% change	315% 250 - 350% 80 - 90% of Original
Heat Shock	1 h @ 136°C	No cracking			No cracking
Lengthwise Shrinkage			2 h 130°C	10% Max.	5%
Softening Temperature			None	Min. 70°C	100°C
Deformation	2 h @ 121°C	Max. decrease wall thickness 50%			22% decrease
Flexibility	60 days @ 113°C	No cracks — returns to round cross sections after creasing	200 h 100°C	No cracks 180° bend around 1/8" rod	No cracking — proper return to round cross section
Cold Performance	-10°C	No cracks — 6 turns around mandrel	50% brittle temp. impact method	Max. -10°C	No cracks at -25°C -35°C brittle point
Flame Resistance	Five 15 sec. flame applications	Not burn longer than 1 min after application	None	Max. 15 sec.	Self-extinguishing in 10 sec or less
Corrosion	7 days @ 186°C	No deleterious effect on copper or tubing	720 h 70°C high humidity	No corrosion, Max. 2% resistance increase of conductor.	Conforms 0.8% resistance increase
Oil Resistance			High swelling oil 200 h 50°C	No cracks, no oil penetration, max. 10° increase in dia.	Conforms 0.5% increase
Fungus Resistance			12 mos. 23°C 50% RH in fungus culture	No fungus growth	Conforms
Bursting Strength Increasing Pressure Continuous Pressure			C-96/23/50 C-96/23/50	+ Min. 29 psi to 96 psi + Min. 15 psi to 48 psi	Exceeds all require- ments by 90%