



Technical Data Sheet

Heat Shrink Tubing

This specification is intended to outline the physical and chemical properties of *PANDUIT's* GMHS31 tubing material for wire identification and insulation purposes and include the following part numbers and printable material identifiers:

Part Number Prefixes	
THSW*	LHSY*
LHS*S*	LHS*Y*
LHSB*W*	LHSW*

Printable Material Suffixes	
F1C	F*T
F1T-B	F13
F16	

PRODUCT SPECIFICATIONS:

Description: Material is RoHS compliant (European Union directive 2002/95/EC). Material is a cross linked flexible, heat shrinkable, printable polyolefin which meets UL224 standard. This material is intended for interior and exterior markers.

Print Methods: This material is recommended for dot matrix and thermal transfer printing.

Standard Colors: White, Yellow

Shrink Ratio: 3 to 1 @ 212°F (100°C)

Service Temperature Range: -22°F to 220°F (-30°C to 105°C)

Storage Conditions: Store at 70°F (21°C) and 50% Relative Humidity.
 For cassette products do not exceed 95°F.

PROPERTIES:

PERFORMANCE:

Tensile Strength: 1500 psi minimum (ASTM D 638)

Elongation Ultimate: 200% minimum (ASTM D 638)

Dielectric Strength: 500 volts/mil minimum (ASTM D 876)

Total Longitudinal Change: Zero to minus 20%

Water Absorption: 0.50% (ASTM D 570)

Fluid Resistance: Mil-23053/5 class 1

Low Temperature Flexibility: No Cracking – 1 hour @ minus 30 C (UL224)

Printability: Product meets print performance of 20 rubs minimum per Mil-M-81531.

Flammability: Product passes, SAE AMS 23053/5, Class I, ASTM D2671

Smoke: Product passes BSS 7238 Smoke Generation Test

Toxicity: Product passes BSS 7239 Toxic Gas Generation Test

Fungus Resistance: 56 day incubation followed by test for:
 Tensile strength: 8.27 MPa (1200 psi) minimum (ISO 846B)
 Ultimate Elongation: 150% minimum (ISO 846B)
 Dielectric Strength: 19.7 KV/mm (500Volts/mil), minimum (ISO 846B)

UV Resistance: 3000 hours no change observed (ASTM G53)



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CHEMICAL/SOLVENT RESISTANCE:

Samples were dot matrix printed with Panduit PDLR ribbon and thermal transfer printed with LS6-RWBLK ribbon. Test was conducted at room temperature. The samples were immersed in the specified chemical reagents for 5 immersions using the following cycle: a 10 minute immersion time followed by a 30 minute recovery time.

Chemical Reagent	Visual Observation	
	Dot Matrix Printed Legend	Thermal Transfer Printed Legend
Distilled Water	No effect	No effect
Mineral Spirits	No effect	No effect
ASTM #3 Oil	Slight smear	No effect
Isopropyl Alcohol	No effect	No effect
Methanol	No effect	No effect
3% Alconox Detergent	No effect	No effect
10% Sodium Hydroxide Solution	No effect	No effect
10% Sulfuric Acid Solution	No effect	No effect
5% Sodium Chloride Solution	No effect	No effect
Freon TF	Slight smear	No effect
Super Agitene	No effect	No effect
Jet-A Fuel	No effect	No effect
Arco TruSlide 68	No effect	No effect
SAE 30 Motor Oil	No effect	No effect

APPROVALS

UL Recognized: UL224

File Number: E205133

LIMITED WARRANTY

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