Sheldahl

PRODUCT BULLETIN

FLAT CABLE TAPES – comprise several Families of Sheldahl Engineered Tapes designed for the manufacture of flexible flat conductor cables. Tapes are available with a variety of adhesive systems each possessing unique flow characteristics. Both flame retardant (white) and non-flame retardant (clear) adhesives can be coated onto Polyester (PET), Polyethylene Naphthalate (PEN) or Polyimide (PI) films for a variety of applications.

STANDARD PRODUCT DESCRIPTIONS

T169400* – Low Flow, Flame Retardant Adhesive on PET, PEN and PI Films.
T176700* – Low Flow, Adhesive on PET, PEN and PI Films.
T196300 – Medium Flow, Flame Retardant and Non-Flame Retardant Adhesives on PET, PEN and PI Films.
T900900 – High Flow, Flame Retardant and Non-Flame Retardant Adhesives on PET, PEN and PI Films.
T187100 – Very High Flow, Flame Retardant Adhesive on PET Film.
The low flow characteristics of these tapes make them well suited for platen pressing as a cover film in the manufacture of **Flexible Printed Circuitry**.

FEATURES

- Flat conductor cables made with these tapes are a cost effective interconnect alternative that meet many of the toughest requirements of the automotive and datacom industries.
- The flexibility of cables made with these tapes allows for their use in a wide range of interconnect packaging configurations.
- High performance adhesive systems withstand many solder bonding processes without delamination.
- Cables made from many of these tapes have a 105^{0}C continuous rating. Depending on cable construction and lamination quality, higher temperature ratings may be achieved.
- Computer controlled processes insures adhesive thickness uniformity of ± 5%.
- Flame Retardant adhesive systems conform to UL 94 VTM-0, with flammability ratings >30 % 0^{2} on many constructions.
- Six month shelf life when stored at 70^{o}F, 50% RH. Storage at lower temperatures and humidity will extend shelf life. Use after six months may require process modifications to achieve acceptable lamination.
- Standard adhesive thicknesses of .8 – 2 mils.
- Standard film thicknesses of .92 – 5 mils.
- Available in a wide variety of roll widths and lengths.

OTHER SERVICES / PRODUCTS

- Low Twist Flat Cable Tape (available with any adhesive).
- Preprinted Film Flat Cable Tape (available with any adhesive).
- Double sided Flat Cable Tape (available with any adhesive).
- PVC Flat Cable Tapes.
- Colored films or adhesive for programs with significant volumes.
- Technical assistance in developing process/product requirements.

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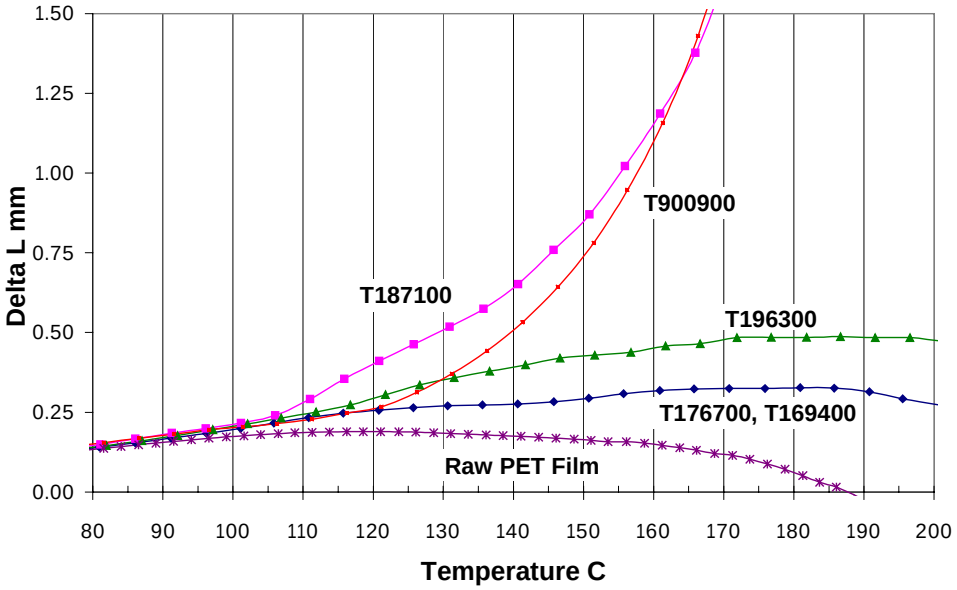
Flat Cable Tape Adhesive Flow Comparisons



TYPICAL PRODUCT DATA [A]				
PROPERTY	METHOD	(PET) TAPES	(PEN) TAPES	(PI) TAPES
PHYSICAL				
Peel Strength (lb./in.)	IPC-TM-650, 2.4.9	10.0	10.0	10.0
Tensile Strength (lb/in^2)	ASTM-D-882	22,000	32,000	32,000
Tensile Modulus (psi)	ASTM-D-882	600,000	870,000	370,000
Elongation (%)	ASTM-D-882	150	60	72
Initial Tear Strength (gms/mil)	IPC-TM-650, 2.4.16, A	800 [E]	800 [E]	600 [E]
Specific Gravity		1.68	1.68	1.68
Flammability (min % 0^2)	IPC-TM-650, 2.3.8	>30 [C]	>30 [C]	>30 [C]
Chemical Resistance	IPC-TM-650, 2.3.2	70 °F [D]	70 °F [D]	70 °F [D]
Moisture Absorption (max %)	IPC-TM-650, 2.6.2	.4	.5	2.8
Flow (max squeeze in mils)	IPC-TM-650, 2.3.17.1	2 [B]	2 [B]	2 [B]
THERMAL				
Dimensional Stability (%)	IPC-TM-650, 2.2.4	0 ± .70	0 ± .20	0 ± .10
Glass Transition Temp.		20 °C	20 °C	20 °C
ELECTRICAL				
Dielectric Constant (max at 1 MHz)	IPC-TM-650, 2.5.5.3	3.3 [E]	3.4 [E]	3.4 [E]
Dielectric Strength (min volts/mil)	ASTM-D-149	3500 [E]	5000 [E]	7700 [E]
Dissipation Factor (max at 1 GHz)	IPC-TM-650, 2.5.5.3	0.008 [E]	0.005 [E]	0.011 [E]
Volume Resistivity (min ohm-cm)	IPC-TM-650, 2.5.17	1×10^{17} [E]	1×10^{16} [E]	1.5×10^{17} [E]
Surface Resistance (min ohm/sq.)	IPC-TM-650, 2.5.17	1×10^{15} [E]	1×10^{15} [E]	1.5×10^{17} [E]

TYPICAL PROCESSING DATA [A]				
LAMINATION METHOD	TEMPERATURE	PRESSURE	SPEED / TIME	OPEN TEMP.
Roll to Roll Laminating	350-390 °F	> 50 pli (pounds per lineal inch of nip)	10-15 FPM	N/A
Platen Pressing	275-300 °F	100-200 psi	10 min.	< 120 °F

(A) Sheldahl Inc. does not guarantee, nor will it accept obligation or liability based on the use of this data. Data subject to change without notice.

(B) Based on T169405 (1.5 mil adhesive and 2 mil film).

(C) Based on standard constructions using flame retardant adhesives, consult factory for data on specific constructions.

(D) Except chlorinated solvents and ketones.

(E) Based on Film alone at 1 mil thickness.

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