7816EH 3M TT2 GW PET 50-310E-90WG

Thermal Transfer Polyester Label Material

Provisional Product Data Sheet

Issued : **June 2004 (Provisional)**

Supersedes : **May 2003 (Provisional)**

Physical Properties
Not for specification purposes
(Calipers are nominal values)

Facestock	50 micron Gloss Radiant White polyester
Adhesive	20 micron #310 E Acrylic
Liner	77 micron, 90 g/m² White Densified Glassine
Shelf Life	24 months from date of manufacture of product when properly stored at 22°C and 50% relative humidity.

Features:

- Facestock is topcoated for thermal transfer printing. Resin ribbons are recommended for optimum durability. The topcoat also provides improved ink anchorage for traditional forms of press printing.
- 310E is a firm adhesive, which resists oozing and provides high strength on a variety of surfaces including high surface energy (HSE) plastics and metals. It additionally has improved chemical and U.V resistance.
- 90 g/m^2 densified glassine liner assures consistent die cutting.
- UL and cUL approved (File Number MH18072)

Application Ideas:

- Barcode labels and rating plates.
- Die cut labels on A4 sheet.
- Property identification and asset labelling.
- Warning, instruction, and service labels for durable goods.
- Nameplates for durable goods.

Performance Characteristics
Not for specification purposes

Adhesion	90°Peel Adhesion, Test procedure FTM 2			
	Initial (20 Minute Dwell/RT)		Ultimate Adhesion 72 Hours Dwell at Maximum UL Temperature rating	
	N/10mm	Oz/In	N/10mm	Oz/In
Aluminium	3.1	28	6.4	58
Stainless Steel	4.7	43	6.8	62
Phenolic	3.1	28	4.7	43
ABS	3.4	31	3.2	29
Polycarbonate	2.5	23	3.1	28
Polystyrene	3.7	34	4.5	41
Polypropylene	0.5	4.6	1.8	16
HD Polyethylene	1.8	16	3.2	29
LD Polyethylene	0.9	8.2	1.3	12
Powder Coating	3.7	34	6.4	31

	Conditioned for 3 Days at - 40ºC	
Surface	90º Peel	
	N/10mm	Oz/In
Aluminium	2.8	25
Stainless Steel	5.9	54
Phenolic	4.0	36
ABS	4.6	42
Polycarbonate	3.3	42
Polystyrene	4.5	41
Polypropylene	1.1	10
HD Polyethylene	2.0	18
LD Polyethylene	1.3	12
Powder Coating	3.3	30

Performance Characteristics Contd.
Not for specification purposes

Adhesion	180°Peel Adhesion, Test procedure FTM 1			
	Initial (20 Minute Dwell/RT)		Ultimate Adhesion 72 Hours Dwell at Maximum UL Temperature rating	
	N/10mm	Oz/In	N/10mm	Oz/In
Aluminium	4.2	38	6.7	61
Stainless Steel	4.5	41	8.7	80
Phenolic	4.8	44	8.7	80
ABS	5.2	47	6.0	55
Polycarbonate	5.1	46	4.2	38
Polystyrene	4.8	44	4.8	44
Polypropylene	0.4	3.6	3.1	28
HD Polyethylene	0.4	3.6	3.0	27
LD Polyethylene	0.4	3.6	0.8	7.5

	180º Peel (FTM 1)	
Surface	Conditioned for 3 Days at - 40ºC	
	N/10mm	Oz/In
Aluminium	4.7	43
Stainless Steel	7.0	64
Phenolic	5.0	46
ABS	4.9	45
Polycarbonate	5.8	53
Polystyrene	4.8	44
Polypropylene	0.6	5.5
HD Polyethylene	0.4	3.6
LD Polyethylene	0.4	3.6

Liner Release

180º Removal of Liner from Facestock (FTM 3)		
Rate of Removal	N/10mm	Gms/50mm Width
2.3 m / min	0.025	13

Performance Characteristics Contd.
Not for specification purposes

Temperature Resistance	149°C for 24 hours:	no significant visual change 0.7% MD shrinkage 0.9% CD shrinkage
	-40°C for 3 days:	no significant visual change
Humidity Resistance	24 hours at 38°C and 100% relative humidity	no significant changes in appearance or adhesion

Environmental Performance	The properties defined are based on four hour immersions at room temperature 22ºC unless otherwise noted. Samples were applied to stainless steel panels 24 hours prior to immersion and were evaluated one hour after removal from the solution for peel adhesion. Adhesion measured at 90º peel angle (FTM 2 at 305 mm/min.				
Chemical Resistance	**Adhesion to Stainless Steel**			**Appearance**	**Edge Penetration**
Chemical	**N/10mm**	**Oz/In**	**% Change**	**Visual**	**Millimetres**
Isopropyl Alcohol	5.4	49	90	No change	1
Detergent (1% Alconox®*)	5.5	51	104	No change	1
Engine Oil (10W30) @ 250ºF (121ºC)	5.7	52	106	No change	1
Water for 48 hours	5.7	52	106	No change	0
pH 4	5.8	53	107	No change	0
PH10	5.8	53	107	No change	0
Toluene	3.1	28	57	No change	5.0
Acetone	3.0	27	56	No change	6.0
Brake Fluid	5.3	48	98	Slight Damage	1
Gasoline	3.8	35	70	No change	5.0
Diesel Fuel	4.6	42	85	No change	0
Naphtha	3.2	29	59	No change	3.0
Hydraulic Fluid	5.6	51	103	No change	0

Agency Listing Information

Thermal Transfer Printing:

UL and cUL approved with the following thermal transfer ribbons

Armor: AXR-7+; AXR-8, AXR600
Ricoh™: B110C, B110CX, B120EC, B110CR
Sony™: TR 4070, TR 5070 TR4570
Astromed R5 (UL only), RY
Kurz: 501(UL only)
Iimak SP-330
Zebra: 4800, 5095, 5100

Processing

Printing:
Facestock is topcoated for improved ink receptivity and is designed for thermal transfer printing. It is printable by all standard roll processing methods including flexography, hot stamp, letterpress, and screen printing.

Die Cutting:
Rotary die cutting is recommended. Fanfolding of labels is not recommended. Small labels should be evaluated carefully. Winding tensions should be kept at a minimum to help prevent the adhesive from oozing.

Packaging:
Finished labels should be stored in plastic bags.

Special Considerations

For maximum bond strength, the surface should be clean and dry. Typical cleaning solvents are heptane and isopropyl alcohol.

NOTE: When using solvents, read and follow the manufacturer's precautions and directions for use.

For best bonding conditions, application surface should be at room temperature or higher. Low temperature surfaces, below 5°C can cause the adhesive to become so firm that it will not develop maximum contact with the substrate. Higher initial bonds can be achieved through increased rubdown pressure.

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