



Screen Printable Sheet Vinyl Label Material

7904

Technical Data

November, 2007

Product Description

3M™ Screen Printable Sheet Vinyl Label Material 7904 is a durable, high performance material that offers excellent conformability, good durability and moisture resistance. This label material utilizes 3M™ Adhesive 350, which is designed to permanently bond to high and low surface energy plastics, textured and contoured surfaces, powder coatings, and slightly oily metals.

Construction

(Calipers are nominal values.)

Facestock	Adhesive	Liner
.0034 in. Soft White Vinyl NTC (86 microns)	350 Acrylic 1.8 mils (46 microns)	90# Polycyd. 6.7 mil bleached kraft sheet polyethylene coated on two sides. (170 microns)

Features

- Facestock is designed to resist lifting and buckling on a wide range of containers and conditions.
- Liner provides easy sheet processing and is designed for layflat. The backside of the liner is not printable.

Application Ideas

- Barcode labels.
- Property identification and asset labeling.
- Warning, instruction, and service labels for durable goods.
- Nameplates for durable goods.
- Labeling of small or irregular shape containers.
- Prime label for polyethylene and other plastic containers used to package consumer products such as nasal mists, shampoos, liquid soaps, lotions and selected food products.

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Typical Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Adhesive Coat Weight	2.70 to 3.24 g/100 in. ²	TM-2279
Release Range	5 to 70 g/2 in.	TLMI Method, 180° removal, 300 in./min.
Service Temperature	-40°F to 140°F (-40°C to 60°C) See Environmental Section	
Minimum Application Temperature	50°F (5°C)	
Convertability	In order to capture the superior performance properties of 3M™ High Holding Acrylic Adhesive 350, thicker calipers are utilized for LSE or textured substrates. Its higher caliper, while desirable for the end use applications, may require extra care during processing. Please refer to the die cutting/convertion section of this data page or the "Guide to Converting and Handling Label Products" technical bulletin for additional information.	

Typical Peel Adhesion Properties

Adhesion: 180° peel test procedure is ASTM D 3330.
90° peel test procedure is ASTM D 3330 modified for the angle change.

Surface	Initial (10 Minute Dwell/RT)				Conditioned for 3 Days at Room Temperature 72°F (22°C)			
	180° Peel		90° Peel		180° Peel		90° Peel	
	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm
Stainless Steel	74	81	50	55	88	96	63	69
Polycarbonate	82	90	59	65	94	103	64	70
Polypropylene	66	72	44	48	76	83	53	58
Glass	83	91	52	57	98	107	67	73
HD Polyethylene	61	67	40	44	59	65	44	48
LD Polyethylene	42	46	32	35	43	47	35	38
Aluminum	74	81	48	53	93	102	69	75
Smooth Powder Coating*	63	69	45	49	75	82	49	54
Finely Textured Powder Coating*	42	46	28	31	41	45	30	33

*Note: These values are averages of multiple powder coated surfaces.

Surface	Conditioned for 3 Days at 158F (70°C)				Conditioned for 24 hours at 90°F (32°C) at 90% Relative Humidity			
	180° Peel		90° Peel		180° Peel		90° Peel	
	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm	Oz./In.	N/100 mm
Stainless Steel	69	75	46	50	93	102	73	80
Polycarbonate	22	24	26	28	90	98	60	66
Polypropylene	61	67	43	47	94	103	59	65
Glass	72	79	45	49	90	98	65	71
HD Polyethylene	51	56	37	40	71	78	49	54
LD Polyethylene	20	22	20	22	52	57	38	42
Aluminum	74	81	50	55	89	97	69	75
Smooth Powder Coating*	55	60	42	46	81	89	53	58
Finely Textured Powder Coating*	38	42	27	30	44	48	28	31

*Note: These values are averages of multiple powder coated surfaces.

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Environmental Performance

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The properties defined are based on four hour immersions at room temperature (72°F/22°C) 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 180° peel angle (ASTM D 3330) at 12 inches/minute.

Chemical Resistance:

Chemical	Adhesion to Stainless Steel		Appearance	Edge Penetration
	Oz./in.	N/100 mm	Visual	Millimeters
Isopropyl Alcohol	75	42	No change	1.0
Detergent 1% Alconox® Cleaner	96	100	No change	0.5
Engine Oil (10W30) @ 250°F (121°C)	25	27	No change	0.5
Water for 48 hours	92	101	No change	0.0
pH 4	104	114	No change	0.5
pH 10	87	95	No change	0.0
409® Formula	95	104	No change	0.0
Toluene	N/A*	N/A*	N/A*	N/A*
Acetone	N/A*	N/A*	N/A*	N/A*
Brake Fluid	4	4	Edges Curled	2.0
Gasoline	N/A*	N/A*	N/A*	N/A*
Diesel Fuel	81	89	No change	0.5
Mineral Spirits	72	79	No change	1.3
Hydraulic Fluid	87	95	No change	0.0

N/A* – Facestock detached from adhesive. No value obtained.

Temperature Resistance:

250°F (121°C) for 24 hours:

No significant visual change.

Humidity Resistance:

24 hours at 100°F (38°C) and 100% relative humidity:

No significant change in appearance or adhesion.

Accelerated Aging:

ASTM D 3611:

96 hours at 150°F (65°C)

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Application Techniques	<p>For maximum bond strength, the surface should be clean and dry. Typical cleaning solvents are heptane and isopropyl alcohol.*</p> <p>For best bonding conditions, application surface should be at room temperature or higher. Low temperature surfaces, below 50°F (10°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.</p> <p>*When using solvents, read and follow the manufacturer's precautions and directions for use.</p>
Printing	<p>Label material is designed for screen printing. The converter should verify that their ink systems are compatible with the vinyl film by testing beforehand.</p>
Die Cutting / Converting	<p>Flatbed die cutting is recommended. Fanfolding of labels is not recommended. Small labels should be evaluated carefully.</p>
Packaging	<p>Finished labels should be stored in plastic bags.</p>
Storage	<p>Store at room temperature conditions of 72°F (22°C) and 50% relative humidity.</p>
Shelf Life	<p>If stored under proper conditions, product retains its performance and properties for two years from date of manufacture.</p>

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Product Use

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ISO 9001:2000

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.



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Printed in U.S.A.
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