



# Destructible Polyurethane Label Stock 3812

## Product Data Sheet

Updated : April 2004

Supersedes : June 2000

**Description :** 3812 is a destructible, non-shrink opaque white polyurethane film. It is designed as a non-removable label stock. Once applied in a correct manner, a one piece removal is not possible on most surfaces.

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

<b>Facestock</b>	40 micron matte white polyurethane
<b>Adhesive</b>	25 micron #350 Hi Holding modified acrylic PSA
<b>Liner</b>	75 micron Bleached, 90g/m <sup>2</sup> glassine paper, single sided siliconised
<b>Shelf Life</b>	24 months from date of manufacture by 3M when properly stored at 22°C & 50 % Relative Humidity

**Physical Properties**  
Not for specification purposes

<b>Tensile Stress at Yield (Down Web) (DIN 53455)</b>	< 27.5 N/10 mm
<b>Elongation at Yield (Down Web) (DIN 53455)</b>	< 5 %
<b>Liner Release (Finat FTM-3)</b>	2.75 – 9 cN/10 mm

**Adhesion Performance**  
Not for specification purposes

	<b>180° Adhesion after 20 minutes (N/10 mm)</b>	
	<b>Typical Results</b> <i>Test specimen not reinforced</i>	<b>Test Method</b> <i>Test specimen reinforced</i>
<b>Aluminium</b>	Destructible	25Finat FTM 1
<b>Stainless Steel</b>	Destructible	25Finat FTM 28
<b>AFERA Steel</b>	Destructible	25Finat FTM 22
<b>Polyethylene</b>	3.1	-
<b>Polypropylene</b>	0.39	-
<b>PVC</b>	2.75	-
<b>PET</b>	Destructible	25Finat FTM 22
<b>PC</b>	Destructible	25Finat FTM 18
<b>ABS</b>	Destructible	25Finat FTM 22
<b>PMMA</b>	Destructible	25Finat FTM 22

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**Adhesion Performance**  
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<b>180° Adhesion after 24 hours (N/10 mm)</b>		
	<b>Typical Results</b> <i>Test specimen not reinforced</i>	<b>Test Method</b> <i>Test specimen reinforced</i>
<b>Aluminium</b>	Destructible	30Finat FTM 1
<b>Stainless Steel</b>	Destructible	30Finat FTM 30
<b>AFERA Steel</b>	Destructible	30Finat FTM 30
<b>Polyethylene</b>	3.9	-
<b>Polypropylene</b>	Destructible	30Finat FTM 6
<b>PVC</b>	Destructible	30Finat FTM 20
<b>PET</b>	Destructible	30Finat FTM 25
<b>PC</b>	Destructible	30Finat FTM 22
<b>ABS</b>	Destructible	30Finat FTM 25
<b>PMMA</b>	Destructible	30Finat FTM 25

<b>180° Adhesion after 7 days at 70°C (N/10 mm)</b>		
	<b>Typical Results</b> <i>Test specimen not reinforced</i>	<b>Test Method</b> <i>Test specimen reinforced</i>
<b>Aluminium</b>	Destructible	30Finat FTM 1 & 5
<b>Polyethylene</b>	2.75	-
<b>Polypropylene</b>	Destructible	30Finat FTM 13

<b>180° Adhesion after 7 days at 40°C / 100% RH (N/10 mm)</b>		
	<b>Typical Results</b> <i>Test specimen not reinforced</i>	<b>Test Method</b> <i>Test specimen reinforced</i>
<b>Aluminium</b>	Destructible	25Finat FTM 1 / DIN30646

<b>180° Adhesion after 7 cycles at : 1 cycle: 8 hours 40°C/100% RH 16 hours 22°C / 100% RH (N/10 mm)</b>		
	<b>Typical Results</b> <i>Test specimen not reinforced</i>	<b>Test Method</b> <i>Test specimen reinforced</i>
<b>Aluminium</b>	Destructible	30Finat FTM 1 / DIN30646

<b>Static Shear (on Aluminium) (Minutes)</b>		
<b>22°C / load 1 kg</b>	10000+	Finat FTM 8
<b>50°C / load 250 g</b>	10000+	30Finat FTM 1 / DIN30646

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### Thermal Properties

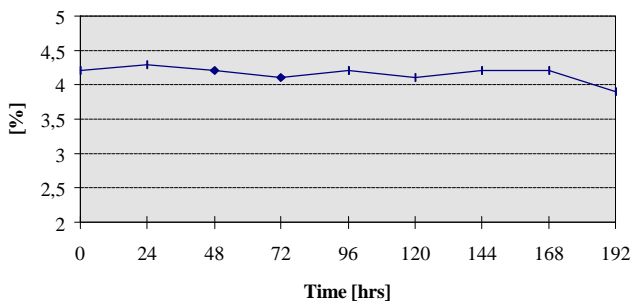
Not for specification purposes

Temperature Resistance (Visual) DIN 30646	
<b>Long Term</b> <b>Short Term</b>	- 40°C to 120°C up to 150°C
Shrink (test specimen applied on aluminium) DIN 30646	
<b>120°C / 10 minutes</b> <b>120°C / 7 days</b>	Not measurable Not measurable

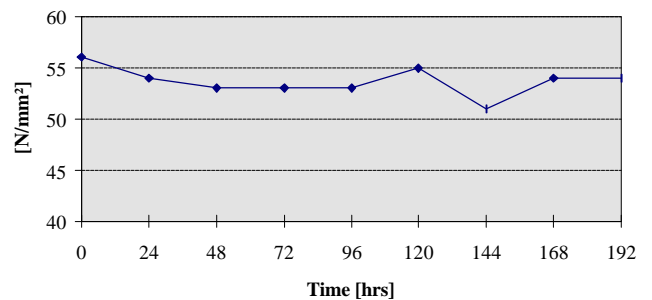
### Thermal Ageing

Thermal ageing was tested at a temperature of **120 °C**. Test method: DIN 3455.  
 During the tested time period 3812 Polyurethane Labelstock did not show any changes in performance

**Elongation at Yield Stress**



**Tensile at 5 % Strain**



### Visual Properties

	Gloss (60°)	Colour (DIN6174) CIELAB-System-Value*	Visual Appearance
<b>Standard Material</b>	20	95.5	O.K.
<b>7 days at 70°C</b>	25	95.1	No changes
<b>7 days at 40°C/100% RH</b>	25	95.3	No changes
<b>7 cycles at :</b> <b>8 hrs 40°C/100% RH</b> <b>16 hrs 22°C/100% RH</b>	25	95.3	No changes
<b>Saltspray</b>	25	95.2	No changes

\*L value of 100 correspond to ideal white // L value of 0 correspond to black

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**Resistance to  
 Chemicals & Solvents**  
 Not for specification purposes

Test method : DIN 30646		
Chemical/Solvent	Duration of Immersion	Comment / Result
<b>Detergent (1%0</b>	24 hrs	No change
<b>Antifreezing Solution</b>	24 hrs	No change
<b>Diesel Fuel</b>	24 hrs	No change
<b>Motor Oil</b>	24 hrs	No change
<b>Water (95°C)</b>	8 hrs	No change
<b>Sulphuric Acid (30%)</b>	8 hrs	No change
<b>Caustic Soda (10%)</b>	8 hrs	No change
<b>Xylene</b>	10 min.	No change
<b>Ethanol</b>	5 min.	No change
<b>Toluene</b>	5 min.	No change
<b>Test Fuel</b>	5 min.	No change

**Processing**

**Cutting:**

3812 Destructible Polyurethane Labelstock features a smooth, hard, caliper controlled liner with very good kiss cutting characteristics. Weed stripping is recommended using a 25 mm idler. For better handling we recommend label formats with "rounded" corners, length of label in the machine direction, minimum 3 mm between labels and minimum 10 mm liner- supported waste matrix sidebars.

**Printing:**

3812 Destructible Polyurethane Labelstock is recommended for screenprinting processes using appropriate inks from suppliers like Wiederhold, Marabu etc. Both UV and solvent based inks are suitable. Sheet screenprinting must be evaluated depending on size and actual conditions.

3812 is suggested for evaluation for flexographic, letterpress, offset and screen "Roll" printing methods.

The following inks were found to give good results:

**Flexo: Water based:** Akzo Nobel: Hydrofilm, Hydrokett, Thermokett TC, Aarberg: Series 53-1 These Water based flexo inks should be evaluated on a case by case basis for very harsh conditions.

**Flexo: UV:** Akzo Nobel: Flexocure after corona treatment, Aarberg: Series 39-2, Sun Chemical: Bargoflex UV inks 67, 75.

**Letterpress: UV:** Aarberg: Series 32-2, 41-2 inks after corona treatment. Other flexographic, letterpress and offset printing inks can be considered but should be evaluated on a case to case basis.

**Application:**

All surfaces must be clean and dry and at an ambient temperature of over 10° C. 3812 Destructible Polyurethane Labelstock has been developed for application to smooth and slightly rough surfaces, including several low-surface energy plastics and small diameter applications. Individual substrates should be evaluated for suitability.

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**Agency Recognition:** UL Recognised File No.MH16411 and CSA Accepted File No. 99316

**Storage:** Unprocessed films: two years. Processed labels: one year.

Films and labels must be stored in a clean area free of excessive moisture and direct sunlight at room temperature. Processed labels should be stored in Polyethylene bags, 0.1 mm thickness, to protect against moisture.

**Thermal Transfer Imageability :**

3812 Destructible Polyurethane Labelstock offers an ideal surface for Thermal Transfer Printing. This printing technology provides excellent covering power combined with the capability of uniform surface coverage. It also allows the individual printing of high density BARCODES beyond standard labelling applications.

The quality of the printing is dependent on the printer/ribbon combination. Good results have been obtained with the following units.

<b>Printers</b>	<b>Ribbons</b>
Zebra Z 90, 91,130, 140	ICS-CC 4099-1, Zebra 5175, Ricoh B 110 A, Armor AXR 7 + (limak SH 36)
Datamax Prodigy Plus	ICS-CC 4099-1, Ricoh B 110 A, Armor AXR 7+ (limak SH 36)
TEC B 602, B 402, B 65, B 30	ICS-CC 4099-1, Ricoh B 110 A, Armor AXR 7+ (limak SH 36)
Sato 8400, 8450	ICS-CC 4099-1, Ricoh B 110 A, Armor AXR 7+ (limak SH 36)

This listing does not claim to be complete or represent any order of merit. Other combinations can be considered but should be evaluated on case to case basis.

**Parameter:**

New printer / ribbon combinations should be evaluated beginning with lowest printing speed and highest burn temperature. Printing speed and burn temperature can be then successively increased / reduced.

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Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.



**Tapes & Adhesives Group**

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