

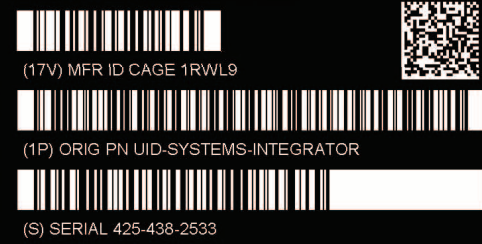
3M™ Laser Markable Label Materials for DOD Uniquely Identified Assets



accurate

reliable

DoD
Tough



Durable long-term performance for UID tracking

To meet the Department of Defense Military Standard 130 for **UID*** tracking labels, 3M offers both Thermal Transfer and Laser Markable Label Materials.

3M™ Thermal Transfer Label Materials combine facestocks and adhesives that are easy-to-print and place, and withstand extreme temperatures, harsh chemicals and abrasion.

For applications requiring longer durability over the life of a labeled item, **3M™ Laser Markable Label Materials** provide multiple production and performance benefits:

- Lower effluent for cleaner engraving process
- Productivity – Same laser that creates a high resolution, high contrast image kiss-cuts the label to size
- Reliability – 3M automotive-grade acrylic adhesive keeps the label in place with long-term strength even on LSE plastics, oily metals, powder coatings, and textures
- Suitable for labeling many painted surfaces including CARC
- Tamper-indicating – acrylate film fractures and leaves tell-tale fragments if removed
- Functionally stable over a wide temperature range (see chart on back)

*Unique Identification – A mandate of the Department of Defense requiring Data Matrix bar-codes on military assets.

Thermal and Laser Solutions

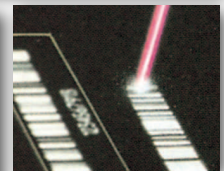
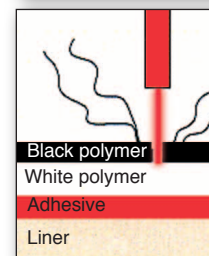
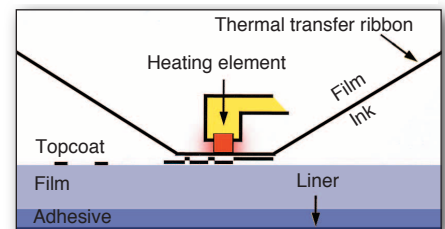


Image and die-cut using standard Nd:YAG lasers with no corrosive emissions.

Recognized Component under file MH11410 (for laser markable) and MH16411 (for thermal transfer) by Underwriters Laboratories Inc.



3M™ Durable Data Matrix Bar Code Label Materials

Products	Typical Performance Characteristics	Facestock (Mils)	Adhesive (Mils)	Liner (Mils)	Roll Width Minimum	Print Method	Specs
7847	Excellent temperature, chemical, and environmental resistance. Two-layered film construction provides excellent long-term performance. Excellent adhesion to LSE plastics. Brittle facestock provides destructibility on some substrates.	Acrylate Matte Black/White (2.4)	350 Acrylic (1.2)	65# DK (3.2)	48" x 984' master 3.5" X 984' preslit 4.75" x 984' preslit	Laser Etch	UL CSA RoHS
7848		Acrylate Matte Silver/Black (2.4)					
7816	Excellent durability with a wide range of ribbons. Adhesive 310 is firm to resist oozing.	Polyester TC White (2.0)	310 Acrylic (0.8)	55# DK (3.2)	54" x 1668' master 4.5" x 1668' preslit 6" x 1668' preslit	Thermal Transfer	UL CSA RoHS
7868	Excellent high temperature resistance and adhesion to LSE plastics and smooth powder coats.	Polyester TC White (2.0)	350 Acrylic (1.2)	55# DK (3.2)			

Facestock Information*

Facestock	Film Properties	Processing Properties		Environmental Resistance			Features
	Service Temperatures	Printability	Conformability	Chemical	Moisture	Outdoor/UV	
Laser Markable Acrylate	-40° to 392°F (-40° to 200°C) 530°F (277°C) for 1 min. 482°F (250°C) for 5 min. 440°F (227°C) for 60 min.	Laser Markable	7	10	8	10	Ultra-high temperature performance. Can be imaged and "kiss cut" by a laser beam. Long-term readability, chemical and abrasion resistance.
Polyester TC	-40° to 302°F (-40° to 150°C) -20° to 257°F (-29°C to 125°C) (clear only)	Thermal Transfer	2	9	9	8	High quality rigid film with high tensile strength. Excellent dimensional stability. Not recommended for curved surfaces. High tear resistance, notch sensitive.

Adhesive Performance Properties*

Adhesive	Temperature °F			Adhesive Properties		Adhesion			Environmental Properties Resistance to:		
	Minimum Application	Service		Initial Peel	Ultimate Peel	Metal	HSE	LSE	Chemical	UV	Moisture
		Low	High								
310	50	-40	250	5	6	7	6	5	7	7	8
350	50	-40	350	7	9	9	10	10	9	7	10

Metals	Surface Energy Dynes/cm
Copper	1103
Aluminum	840
Zinc	753
Tin	526
Lead	543

Adhesive	1	2	3	4	5	6	7	8	9	10
310										
350										

LSE Plastics	Surface Energy Dynes/cm
PVA	37
Polystyrene	36
Acetal	36
EVA	33
Polyethylene	31
Polypropylene	29
Tedlar®	28
Teflon®	18

Powder Coatings **

Adhesive	1	2	3	4	5	6	7	8	9	10
310										
350										

HSE Plastics	Surface Energy Dynes/cm
Kapton®	50
Phenolic	47
Nylon	46
Polyester	43
Polyurethane	43
ABS	42
Polycarbonate	42
PVC	39
Acrylic	38

Adhesive	1	2	3	4	5	6	7	8	9	10
310										
350										

** Broad range of surface energy.

* Relative performance is shown with 1 for lowest and 10 for highest.

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

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