

LX45-NA Label (BC-MK-0025)

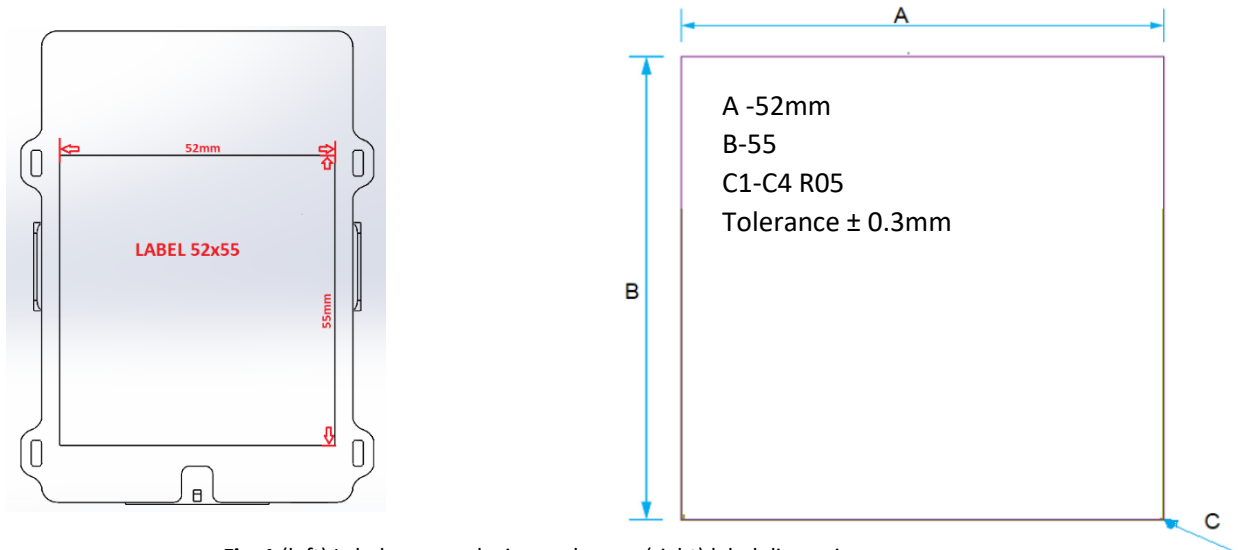


Fig. 1 (left) Label area on device enclosure, (right) label dimensions.

Label Material:

3M 7816

Description:

3M™ Thermal Transfer Polyester Label Material 7816 is a durable polyester label material that offers excellent moisture resistance and thermal stability. This label product utilizes 3M™ Acrylic Adhesive 310 which is a firm adhesive which resists oozing and provides high strength on a variety of surfaces including high surface energy (HSE) plastics and metals.

Font/Size:

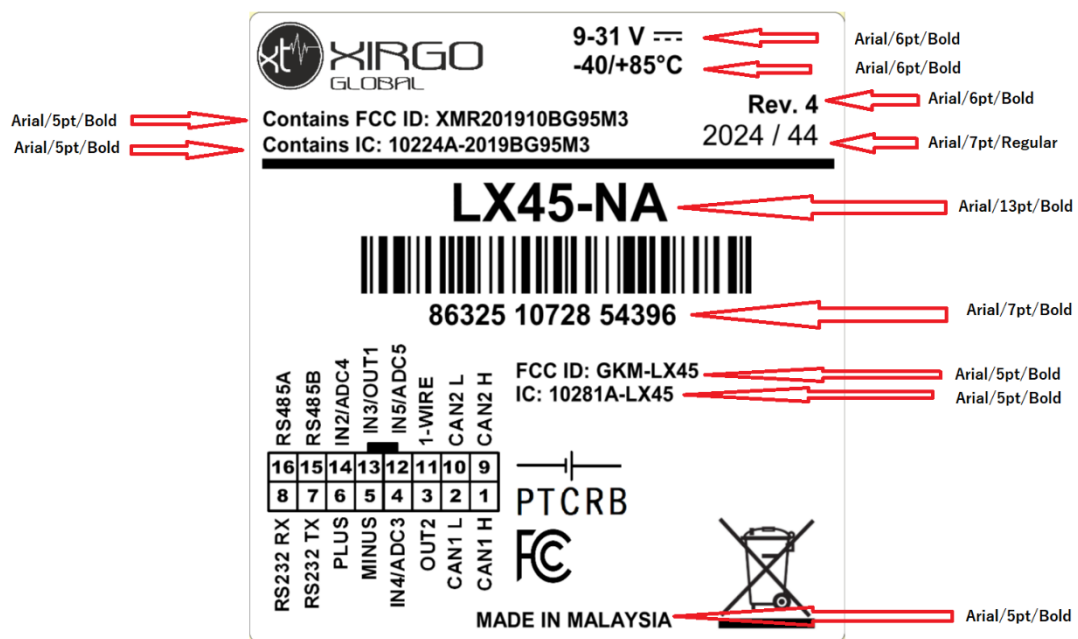


Fig. 2 LX45-NA label design

*All the variants of LX45 are identical from inside.



XIRGO
GLOBAL

9-31 V $\overline{=}$
-40/+85°C

Contains FCC ID: XMR201910BG95M3
Contains IC: 10224A-2019BG95M3

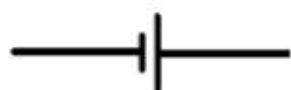
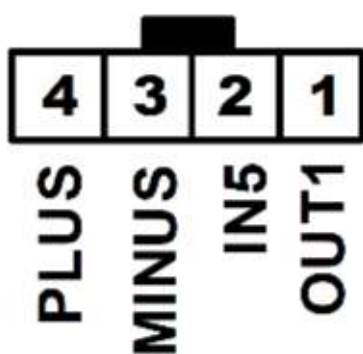
Rev. 4
2024 / 44

LX41-NA



86325 10728 54396

FCC ID: GKM-LX45
IC: 10281A-LX45



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2024 / 44

LX42-NA

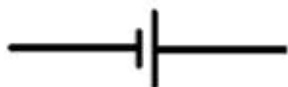


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IN2/ADC4	IN3/OUT1	IN5/ADC5	1-WIRE
8	7	6	5
4	3	2	1
PLUS	MINUS	IN4/ADC3	OUT2

FCC ID: GKM-LX45

IC: 10281A-LX45



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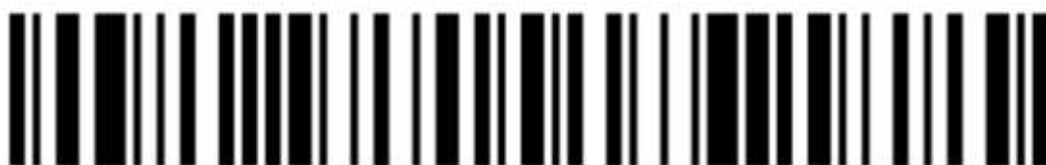
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Contains IC: 10224A-2019BG95M3

Rev. 4

2024 / 44

LX43-NA

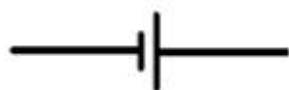


86325 10728 54396

RS485A	RS485B	IN2/ADC4	IN 3	IN 5	1-WIRE	ADC3	OUT3
16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1
RS232 RX	RS232 TX	PLUS	MINUS	IN 4	OUT2	OUT1	ADC5/OUT4

FCC ID: GKM-LX45

IC: 10281A-LX45



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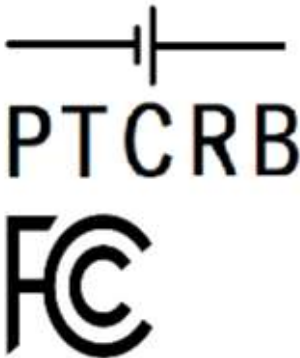
LX44-NA



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OUT3	OUT4	IN2/ADC4	IN3/OUT1	IN5/ADC5	1-WIRE	CAN2 L	CAN2 H
16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1
RS232 RX	RS232 TX	PLUS	MINUS	IN4/ADC3	OUT2	CAN1 L	CAN1 H

FCC ID: GKM-LX45
IC: 10281A-LX45



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LX45-NA



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RS485A	RS485B	IN2/ADC4	IN3/OUT1	IN5/ADC5	1-WIRE	CAN2 L	CAN2 H
16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1
RS232 RX	RS232 TX	PLUS	MINUS	IN4/ADC3	OUT2	CAN1 L	CAN1 H

FCC ID: GKM-LX45
IC: 10281A-LX45



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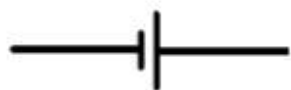
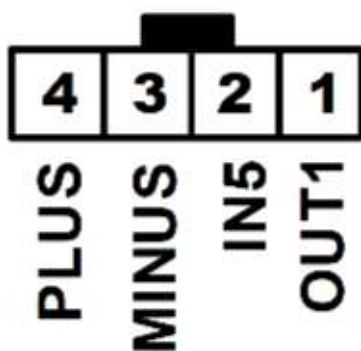
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LT41-NA



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FCC ID: GKM-LX45
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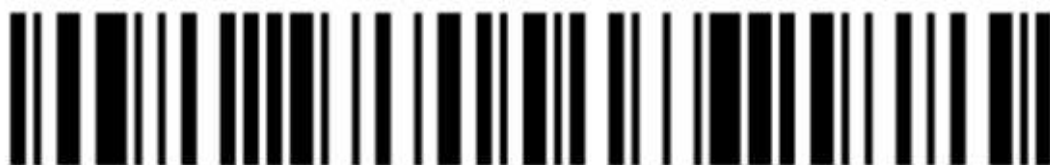
XIRGO
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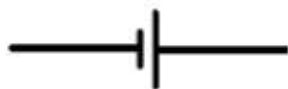
LT42-NA



86325 10728 54396

IN2/ADC4	IN3/OUT1	IN5/ADC5	1-WIRE
8	7	6	5
4	3	2	1
PLUS	MINUS	IN4/ADC3	OUT2

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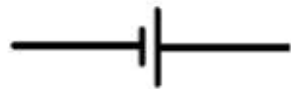
LT43-NA



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RS485A	RS485B	IN2/ADC4	IN 3	IN 5	1-WIRE	ADC3	OUT3
16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1
RS232 RX	RS232 TX	PLUS	MINUS	IN 4	OUT2	OUT1	ADC5/OUT4

FCC ID: GKM-LX45
IC: 10281A-LX45



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LT44-NA

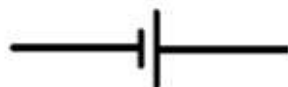


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OUT3	OUT4	IN2/ADC4	IN3/OUT1	IN5/ADC5	1-WIRE	CAN2 L	CAN2 H
16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1
RS232 RX	RS232 TX	PLUS	MINUS	IN4/ADC3	OUT2	CAN1 L	CAN1 H

FCC ID: GKM-LX45

IC: 10281A-LX45



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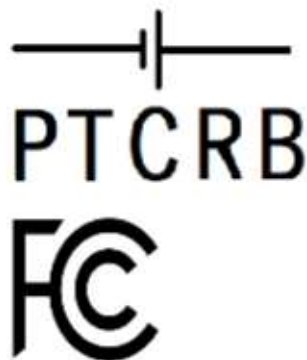
LT45-NA



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RS485A	RS485B	IN2/ADC4	IN3/OUT1	IN5/ADC5	1-WIRE	CAN2 L	CAN2 H
16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1
RS232 RX	RS232 TX	PLUS	MINUS	IN4/ADC3	OUT2	CAN1 L	CAN1 H

FCC ID: GKM-LX45
IC: 10281A-LX45



MADE IN MALAYSIA



May, 2017

3M™ Thermal Transfer Polyester Label Material 7816

Product Description

3M™ Thermal Transfer Polyester Label Material 7816 is a durable polyester label material that offers excellent moisture resistance and thermal stability. This label product utilizes 3M™ Acrylic Adhesive 310 which is a firm adhesive which resists oozing and provides high strength on a variety of surfaces including high surface energy (HSE) plastics and metals.

Product Features

- 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.
- 3M™ Thermal Transfer Polyester Label Material 7816 55# densified kraft liner assures consistent die cutting.
- UL recognized (File MH16411) and CSA accepted (File 99316). See the UL and CSA listings for details.



Technical Information Note

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

Typical Physical Properties

Property	Values	
Facestock	White Polyester Gloss TC	
Facestock Thickness	0.051 mm	2.0 mil
Adhesive	310 Acrylic	
Adhesive Thickness	0.02 mm	0.8 mil
Liner	55# Densified kraft	
Liner Thickness	0.081 mm	3.2 mil
Adhesive Coat Weight	1.00 to 1.25 g/100 in ²	

Convertability

The firmness of 3M™ Acrylic Adhesive 310 is specifically designed to be compatible with thermal transfer and laser technologies. Adhesive processing issues are not anticipated when proper roll tensions, handling and storage conditions are used. Please refer to the die cutting/converting section of this data page or the “Guide to Converting and Handling Label Products” technical bulletin for additional information.

Note

Calipers are nominal values

Typical Performance Characteristics

90° Peel Adhesion		Dwell/Cure Time	Dwell Time Units	Temp C	Temp F	Environmental Condition	Substrate	Backing
2.6 N/cm	24 oz/in	72	hr	22C	72F	52%RH	Polypropylene (PP)	2 mil PET
41 oz/in	4.5 N/cm	72	hr	22C	72F	52%RH	Stainless Steel	2 mil PET
2.2 N/cm	20 oz/in	72	hr	22C	72F	52%RH	High Density Polyethylene (HDPE)	2 mil PET
22 oz/in	2.4 N/cm	72	hr	22C	72F	52%RH	Low Density Polyethylene (LDPE)	2 mil PET
5.0 N/cm	46 oz/in	72	hr	49C	120F	52%RH	Stainless Steel	
3.5 N/cm	32 oz/in	72	hr	49C	120F	52%RH	Polycarbonate (PC)	
3.3 N/cm	30 oz/in	72	hr	49C	120F	52%RH	Polypropylene (PP)	
4.6 N/cm	42 oz/in	72	hr	49C	120F	52%RH	Glass	

Table continued on next page

Typical Performance Characteristics (continued)

90° Peel Adhesion		Dwell/Cure Time	Dwell Time Units	Temp C	Temp F	Environmental Condition	Substrate	Backing
2.2 N/cm	20 oz/in	72	hr	49C	120F	52%RH	High Density Polyethylene (HDPE)	
0.9 N/cm	8 oz/in	72	hr	49C	120F	52%RH	Low Density Polyethylene (LDPE)	
5.1 N/cm	47 oz/in	72	hr	22C	72F	52%RH	Glass	2 mil PET
4.7 N/cm	43 oz/in	72	hr	22C	72F	52%RH	Polycarbonate (PC)	2 mil PET
5.0 N/cm	46 oz/in	24	hr	32C	90F	90%RH	Stainless Steel	
4.4 N/cm	40 oz/in	24	hr	32C	90F	90%RH	Polycarbonate (PC)	
3.0 N/cm	27 oz/in	24	hr	32C	90F	90%RH	Polypropylene (PP)	
3.5 N/cm	32 oz/in	24	hr	32C	90F	90%RH	Glass	
3.0 N/cm	27 oz/in	24	hr	32C	90F	90%RH	High Density Polyethylene (HDPE)	
2.6 N/cm	24 oz/in	24	hr	32C	90F	90%RH	Low Density Polyethylene (LDPE)	
3.8 N/cm	35 oz/in	10	min	22C	72F	52%RH	Stainless Steel	
4.0 N/cm	37 oz/in	10	min	22C	72F	52%RH	Polycarbonate (PC)	
1.8 N/cm	16 oz/in	10	min	22C	72F	52%RH	Polypropylene (PP)	
3.7 oz/in	34 oz/in	10	min	22C	72F	52%RH	Glass	
1.8 N/cm	16 oz/in	10	min	22C	72F	52%RH	High Density Polyethylene (HDPE)	
1.3 N/cm	12 oz/in	10	min	22C	72F	52%RH	Low Density Polyethylene (LDPE)	

Property: 90° Peel Adhesion
Method: ASTM D3330
notes: 12 in/min (300 mm/min)

180° Peel Adhesion		Dwell/Cure Time	Dwell Time Units	Temp C	Temp F	Environmental Condition	Substrate
4.7 N/cm	43 oz/in	10	min	22C	72F	52%RH	Stainless Steel
5.1 N/cm	47 oz/in	10	min	22C	72F	52%RH	Polycarbonate (PC)

Table continued on next page

Typical Performance Characteristics (continued)

180° Peel Adhesion		Dwell/Cure Time	Dwell Time Units	Temp C	Temp F	Environmental Condition	Substrate
2.0 N/cm	18 oz/in	10	min	22C	72F	52%RH	Polypropylene (PP)
5.7 N/cm	52 oz/in	10	min	22C	72F	52%RH	Glass
5.7 N/cm	52 oz/in	72	hr	22C	72F	52%RH	Polycarbonate (PC)
2.0 N/cm	18 oz/in	72	hr	22C	72F	52%RH	Polypropylene (PP)
7.4 N/cm	68 oz/in	72	hr	22C	72F	52%RH	Glass
3.6 N/cm	33 oz/in	72	hr	22C	72F	52%RH	High Density Polyethylene (HDPE)
3.5 N/cm	32 oz/in	72	hr	22C	72F	52%RH	Low Density Polyethylene (LDPE)
6.6 N/cm	60 oz/in	72	hr	49C	120F	52%RH	Stainless Steel
4.5 N/cm	41 oz/in	72	hr	49C	120F	52%RH	Polycarbonate (PC)
3.8 N/cm	35 oz/in	72	hr	49C	120F	52%RH	Polypropylene (PP)
3.3 N/cm	30 oz/in	72	hr	49C	120F	52%RH	High Density Polyethylene (HDPE)
0.4 N/cm	5 oz/in	72	hr	49C	120F	52%RH	Low Density Polyethylene (LDPE)
5.6 N/cm	51 oz/in	72	hr	22C	72F	52%RH	Stainless Steel
7.4 N/cm	68 oz/in	72	hr	49C	120F	52%RH	Glass
8.1 N/cm	74 oz/in	24	hr	32C	90F	90%RH	Stainless Steel
6.8 N/cm	62 oz/in	24	hr	32C	90F	90%RH	Polycarbonate (PC)
4.2 N/cm	38 oz/in	24	hr	32C	90F	90%RH	Polypropylene (PP)
7.2 N/cm	66 oz/in	24	hr	32C	90F	90%RH	Glass
3.8 N/cm	35 oz/in	24	hr	32C	90F	90%RH	High Density Polyethylene (HDPE)
2.2 N/cm	20 oz/in	24	hr	32C	90F	90%RH	Low Density Polyethylene (LDPE)
2.6 N/cm	24 oz/in	10	min	22C	72F	52%RH	High Density Polyethylene (HDPE)

Table continued on next page

Typical Performance Characteristics (continued)

180° Peel Adhesion		Dwell/Cure Time	Dwell Time Units	Temp C	Temp F	Environmental Condition	Substrate
2.2 N/cm	20 oz/in	10	min	22C	72F	52%RH	Low Density Polyethylene (LDPE)

Property: 180° Peel Adhesion
Method: ASTM D3330
notes: 12 in/min (300 mm/min)

Property	Values		Method	Notes
Service Temperature Range	-40 to 149 °C	-40 to 300 °F		
Minimum Application Temperature	10 °C	50 °F		
Liner Release	5 to 50 g/2 in		TLMI	180° removal, 300 in/min

Available Sizes

Packaging

Finished labels should be stored in plastic bags.

Typical Environmental Performance

Chemical and Environmental Exposure

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.

	Adhesion to Stainless Steel		Appearance	Edge Penetration
Chemical	Oz./in.	N/100 mm	Visual	Millimeters
Isopropyl Alcohol	54	59	No change	1
Detergent 1% Alconox® Cleaner	66	72	No change	0
Engine Oil (10W30) @ 250°F (121°C)	70	77	No change	1.5
Water for 48 hours	72	79	No change	0
pH 4	70	77	No change	0
pH 10	66	72	No change	0
Formula 409® Cleaner	65	71	No change	0
Toluene	29	32	No change	6.3
Acetone	38	42	No change	4.5
Brake Fluid	77	84	No change	0
Gasoline	32	35	No change	5.5
Diesel Fuel	55	60	No change	1
Mineral Spirits	48	52	No change	2.3
Hydraulic Fluid	58	63	No change	0

Humidity Resistance

24 hours at 100°F (38°C) and 100% relative humidity: no significant change in appearance or adhesion

Typical Environmental Performance (continued)

Temperature Resistance

When applied to stainless steel. Other substrates should be tested per application.
300°F (149°C) for 24 hours: no significant visual change, 0.7% MD shrinkage, 0.8% CD shrinkage
-40°F (-40°C) for 10 days: no significant visual change

Accelerated Aging		Notes
0.042 N/cm	11 g/in	180° Removal of Liner from Facestock at 90 in/min
0.189 N/cm	49 g/in	180° Peel Adhesion from Stainless Steel at 12 in/min

Property: Accelerated Aging
Method: ASTM D3611
Test Condition : 96 hr @ 150°F (65°C) and 80% relative humidity

Handling/Application Information

Application Ideas

- Barcode labels and rating plates
- Property identification and asset labeling
- Warning, instruction, and service labels for durable goods
- Nameplates and durable goods

Application Techniques

For maximum bond strength, the surface should be clean and dry. Typical cleaning solvents are heptane and isopropyl alcohol.*
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.
*When using solvents, read and follow the manufacturer’s precautions and directions for use.

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.

Thermal Transfer Printing
Printer: UL no longer requires evaluation and listing of specific printers.
Ink Ribbon/UL Recognized Components
Advent: 301 Black; 303 Black; 501 Black; 501 Red; 501 Blue; 501 Green Armor: AXR-7; AXR-7+; AXR-600
Astromed: R5
CP: 5440 Red; 5640 Blue; 5940 Black Dasco: DR-74; DR-84
Great Ribbon: SDR
limak: SH-36; SP-330; PrimeMark Intermec: 053258-2; 054048-4
ITW: B324
Japan Pulp and Paper: JP Resin 1; JP Resin 2 Blue; JP Resin 2 Red (suitable for indoor use only); JP Resin 2 Green (suitable for indoor use only)
Kurz: K500; K501
Markem: 716 (suitable for indoor use only) Mid City Columbia: CGL-80; CGL-80HE
NCR: Matrix Resin; Matrix; PaceSetter; Promark II; Ultra V
Pelikan: T016
Ricoh: B110A; B110C; B110CX
Sato: Premier 1
Sony: 4070; 4072; 4075; 4085; 5070; Signature Series Resin; Signature Series Wax UBI: HR03; HR04
Zebra: 5095; 5099; 5100; 5175

Converting

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.

3M™ Thermal Transfer Polyester Label Material 7816

Storage and Shelf Life

Store at room temperature conditions of 72°F (22°C) and 50% relative humidity.
If stored under proper conditions, product retains its performance and properties for 24 months from date of manufacture.

Industry Specifications

UL Recognized (File MH16411)
CSA Accepted (File 99316)

Trademarks

3M is a trademark of 3M Company.
Alconox is a registered trademark of Alconox, Inc.
Formula 409 is a registered trademark of Clorox Inc.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/company-us/all-3m-products/~ /3M-Thermal-Transfer-Label-Materials-7816/?N=5002385+3294001419&rt=rud
Safety Data Sheet (SDS)	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=7816

Family Group

	7816	7816FL	7875
Facestock	White Polyester Gloss TC	White Polyester Gloss TC	Matte Platinum Polyester TC
Facestock Thickness (mm)	0.051	0.051	0.051
Adhesive	310 Acrylic	310 Acrylic	310 Acrylic
Adhesive Thickness (mm)	0.02	0.02	0.02
Liner	55# Densified kraft	Polyester	55# Densified kraft
Liner Thickness (mm)	0.081	0.038	0.081

ISO Statement

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

Information

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

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