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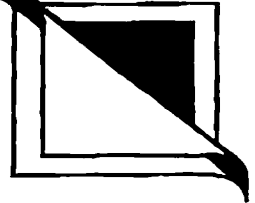
GRAFIX,

PAGE 05

23204-0052

2003

MSDS - Dura-Lar™ Polyester Film



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Emergency Contact:

Grafix, Inc.
19499 Miles Rd.
Cleveland, Oh, 44128
(216) 581-9050

Product Identification:

Dur-Lar is an oriented polyester film. May contain a coextrusion layer. Various fillers or additives used to modify the physical appearance and/or surface properties may be present. Base film is Polyethylene Terephthalate (PET).

Hazardous Ingredients:

This material is not a "health hazard" as defined under the OSHA Hazard Communication Standard, 29 CFR 1910.1200 or S.A.R.A. Title III, Section 313. This material is considered an article under OSHA and TSCA standards.

Physical-Chemical Data:

The transparent, odorless film is chemically stable and resistant to attacks by oils, solvents, weak acids and weak alkalis. This film melts in the range of 260°C. It has a specific gravity of 1.2 - 1.4. Insoluble in water.

Physical Hazards:

Heavy gauges of Polyester Film can contain sharp edges. Proper protective gear such as gloves is recommended. The top coating of the film can create a slip hazard when dropped on the floor. Walking areas should be kept clear of this film.

Unwinding, winding and passage of this film through and over rollers will tend to generate a strong electrostatic charge on the web. Static discharge devices should be properly positioned at such points to eliminate the charge and prevent uncontrolled discharge from the web. This is particularly required in potentially explosive atmospheres and to protect personnel from the effects of static discharge.

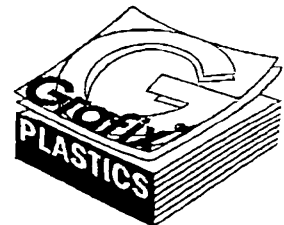
General exhaust is acceptable except where overheating can occur during processing. High temperature operations may require use of local exhaust ventilation to keep employee exposure below recommended limits.

GRAFIX® Plastics

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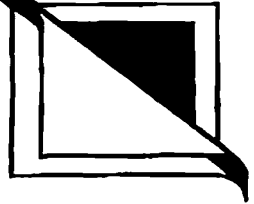
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MSDS - Dura-Lar™ Polyester Film



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Health Hazard Data:

No adverse health effect have been attributed to this polyester film at ambient temperature.

Hazard Designations

		Key
Health:	1	0-None
Flamability	1	1-Slight
Reactivity	0	2-Moderate
		3-Severe
		4-Extreme

Control Measure and Safe Handling Procedures

The film will burn if exposed to flame. Fire fighters should protect themselves from decomposition and combustion products that may include carbon dioxide, carbon monoxide, aldehydes, organic acids, alcohols and other such toxic gases. Wear self-contained breathing apparatus and complete personal protective equipment when potential for exposure to products of combustion exist. Fire fighting extinguishing media include carbon dioxide, water spray, foam or dry chemical.

Disposal and Shipping Information:

Polyester film is not classified as hazardous waste under the Resource Conservation and Recovery Act, and unless prohibited by state or local regulation, can be disposed of in a municipal landfill or incinerated. This product is not classified by the U.S. Department of Transportation as a hazardous material.

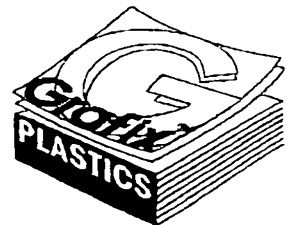
Information Contact:

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19499 Miles Rd.
Cleveland, OH. 44128

To the best of our knowledge the information contained herein is accurate. However, Grafix assumes no liability whatsoever, for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All material may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

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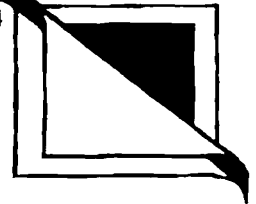
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JAN 2004

Dura-Lar[®]

Oriented Polyester Film



DESCRIPTION:

Dura-Lar[®] is an oriented polyester film which is available in a variety of finishes and gauges. It is ideally suited for a wide range of uses such as packaging, printing, die-cutting, electronics, protective overlay, barrier protection, apparel, and other industrial applications. Because of its inherent physical properties, Dura-Lar[®] is your best choice for a high performance plastic film or sheet.

FEATURES:

Archival Quality
Dimensional Stability
Lay-Flat
Chemical Resistance
Consistent Color
Clarity
Non-Yellowing
Non-Tearing
Heat Resistance to 230 C
Electrical Resistance

FINISHES:

Clear
Hazy
Matte
Prepared (Gel Coated)
Pressure Sensitive
Metallized ✱
Transparent Blue
Custom Color Tints

*Not all finishes stocked in each gauge.

GAUGES:

.001" to .014"

CONVERSION TO CUSTOMER SPECIFICATION

GRAFIX[®] Specializes In Converting Plastic Film & Sheet

To Customer Specification:

- Sheeting, Trimming, Slitting
- Rolls Produced To Specified Width, Length, & Core Size
- Hole Punching & Corner Rounding
- Custom Packaging

CONVERTED STOCK PRODUCTS

GRAFIX[®] Maintains A Wide Variety Of Sizes Of Sheets, Rolls, and Packs Of Dura-Lar[®].

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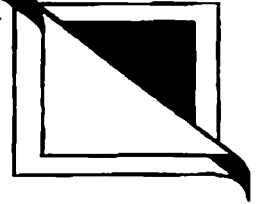
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Dura-Lar

Oriented Polyester Film



TYPICAL PROPERTIES OF DURA-LAR²

Properties based on 92 Gauge General Use Film

Properties of other gauges and finishes of Dura-Lar can vary.

PHYSICAL PROPERTIES:

Property	Typical Value	Units	Test Method
Tensile Strength (MD)	28,000	psi	ASTM D 882
Tensile Strength (TD)	34,000	psi	ASTM D 882
Strength Elongation MD	15,000	psi	ASTM D 882
Strength F-5 TD	14,000	psi	ASTM D 882
Modulus MD	710,000	psi	ASTM D 882
Modulus TD	740,000	psi	ASTM D 882
Elongation MD	115	%	ASTM D 882
Elongation TD	92	%	ASTM D 882
Surface Roughness	38	nm	Optical Profilometer
Density	1.39	g/cc	ASTM D 1505
Viscosity	0.56	dL/g	ASTM D 4603
Yield	21,000	in ² /lb	

ELECTRICAL PROPERTIES:

Property	Typical Value	Units	Test Method
Dielectric Strength			
AC, 20°C, .00092"	7,000	volts/mil	ASTM D 149-64
Dielectric Constant			
25°C, 1 kHz	3.2		ASTM D150-81
Dissipation Factor			
25°C, 1 kHz	0.005		ASTM D150-65
Volume Resistivity 25° C	1.00E+19	ohm-cm	ASTM D257-78
Corona Threshold	425	V-AC	ASTM D2275-80

THERMAL PROPERTIES:

Property	Typical Value	Units	Test Method
Melt Point	254	°C	
Dimensional Stability			
at 105° MD	0.6	%	
at 105° MD	0.3	%	
at 105° MD	1.8	%	
at 105° MD	1.0	%	
Specific Heat	0.28	cal/g/°C	
Thermal Expansion	1.7 x 10 ⁻⁵	in./in./°C	ASTM D 696
UL94 Flame Class	94VTM-2	Slow to Self Extinguishing	

Important Notice: Grafix makes no warranties, express or implied, including but not limited to any implied warranty of merchantability of fitness for a particular purpose. The user is responsible for determining whether the Grafix product is fit for a particular purpose and suitable for the user's method of application. Please remember that many factors can affect the use and performance of an OptiGrafix optical film product in a particular application. Given the variety of factors that can affect the use and performance of a Grafix product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the Grafix product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

Limitation of Remedies and Liability: If the Grafix product is proven to be defective, THE EXCLUSIVE REMEDY, AT GRAFIX'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE GRAFIX PRODUCT. Grafix shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including, but not limited to, contract, negligence, warranty or strict liability.

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