

ENGINEERING DATA SHEET

DSM 3.8.31

ASMP

Polymex Polymers Shims

1. Definition:

This specification applies to thickness from .0005" to .014" as detailed and are produced colour coded from polyester films ('Melinex', 'Mylar', 'Hostaphan') to meet the demands of the engineering, automotive, electrical, electronic industries. Polyester materials are remarkably tough with very high compressive and dielectric strengths, very low water absorption, excellent dimensional stability over a wide range of temperatures and good resistance to most chemicals, ozone, direct sunlight etc.

2. Why Choose Polymex Polymers:

- Unique colour-coding of the material provides instant thickness identification
- Internationally trusted and recognised products.
- High strength to weight ratio makes them a strong alternative to metallic shims due to corrosion resistance and durability.
- Manufactured in the UK to the highest quality standards in our high hygiene manufacturing facility.
- Highly durable and excellent wear-resistance.
- Excellent insulation properties.
- Chemical and oil resistance.
- Low co-efficient of friction.
- High compressive strength.
- Outstanding product performance.
- Moisture resistant so they will not swell or degrade in harsh or challenging environments.
- Extensive range of temperature tolerances.

3. Colours & Thickness Available:

Please see colour-coded Polymex chart below for a full breakdown.

Thickness and Colour Option			
Thickness	Colour	Thickness	Colour
(0.012mm) / 0.0005"	Clear	(0.250mm) / 0.010"	White
(0.025mm) / 0.001"	Purple	(0.300mm) / 0.012"	Dark Green
(0.037mm) / 0.0015"	Pink	(0.350mm) / 0.014"	Natural
(0.050mm) / 0.002"	Blue	(0.375mm) / 0.015"	Red
(0.065mm) / 0.00252"	Black	(0.500mm) / 0.020"	Yellow
(0.075mm) / 0.003"	Green	(0.500mm) / 0.020"	Hazy
(0.100mm) / 0.004"	Amber	(0.625mm) / 0.025"	L. Grey
(0.125mm) / 0.005"	Brown	(0.750mm) / 0.030"	Blue
(0.150mm) / 0.006"	Clear	(1.000mm) / 0.040"	Tan
(0.175mm) / 0.007"	P. Blue	(1.250mm) / 0.050"	C. Grey
(0.190mm) / 0.0075"	Hazy	(1.500mm) / 0.060"	Cream
(0.200mm) / 0.008"	Tint Blue**	(2.000mm) / 0.080"	Natural
(0.225mm) / 0.009"	Silver	(3.000mm) / 1.125"	Black

Thin gauges from **(0.012mm / 0.0005" – 0.350mm / 0.014")** is made from **Material Specification 'A'** – Mechanical Properties for Polymex Polyester Spec 'A':.

Thicker gauges from **(Red 0.375mm / 0.015" to 3.000mm / 1.125")** is made from **Material Specification 'B'** – Mechanical Properties for Polymex Polypropylene Spec 'B':.

**** (0.200mm) / 0.008"** is a Polyester Laminate and may perform differently in some applications.

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4. Mechanical Properties for Polymex Polyester Spec 'A':

These values are representative. For critical applications, refer to datasheet.

GENERAL PROPERTIES			
Property	Values		Test Method
Relative Density:	1.40 Kg/m ²		ASTM D 1505
Water Absorption:	0.60% (1 week 24°C)		N/A
MECHANICAL PROPERTIES			
Property	Values		Test Method
	MD*	TD*	
Tensile Strength:	2000kgf/cm ²	2600kgf/cm ²	ASTM D 882
Yield Strength:	1000kgf/cm ²	1000kgf/cm ²	ASTM D 882
Elongation Break:	125%	80%	ASTM D 882
Ultimate Compressive Strength:	28500 psi (250A)		ASTM D 695-63T
ELECTRICAL PROPERTIES			
Dielectric Strength:	6.4kv (23m) 16kv (125m) 23kv (250m) - ASTM D 149		
Surface Resistivity:	>10 ¹³ Ω/□		
THERMAL PROPERTIES			
Service Temperature:	-70°C to 130°C		
Melting Point:	265°C		
Co-Efficient of Thermal:	19 x 10 ⁻⁶ (MD*) cm/cm/deg/c		
Expansion (Between 20°C & 50°C):	19 x 10 ⁻⁶ (TD*) cm/cm/deg/c		
Shrinkage (Ater 5 mins @190°C):	3% (MD* & TD*)		

MD* = Machine Direction TD* = Transverse Direction

Resistant to:

Dilute acids and alkalis / grease / oils / fats / organic / solvents / alcohols /hydrocarbons /
kentones / esters /chlorinated compounds.

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5. Material Specification 'B'

This specification applies to the thickness range from (0.375mm / 0.015" to 3.000mm / 1.125") and are produced colour coded from specially reinforced propylene copolymer PP4 which is an excellent engineering material.

Materials highlighted in grey are made from Spec 'B' grade see section - Colours & Thickness Available:.

6. Mechanical Properties for Polymex Polypropylene Spec 'B':

These values are representative. For critical applications, refer to datasheet.

MECHANICAL PROPERTIES		
Property	Values	Test Method
Tensile Strength at Yield:	3560 lbf/in ²	ASTM D 882
Ultimate Compressive Strength:	4000-8000 psi	-
Elastic Modules in Tension:	200.000 lbf/in ²	ASTM D790 59T
Izod Impact Strength:	8ft lbf/in notch	BS 2782 306A
(1.00mm notch):	430 J/M notch	-
Brittle Failures:	None	-
Brinell Hardness:	9.5	BS 240
Softening Point:	144°C	BS 2782 102D
Co-efficient of Linear Expansion:	11* 10 ⁵ per deg C	-
ELECTRICAL PROPERTIES		
Surface Resistivity:	>10 ¹⁵ Ω	BS 2782 203A
Volume Resistivity:	>10 ¹⁶ Ω cm	BS 2782 202A
Electrical Strength	19 kv/mm	BS 2782 206B
SURFACE PROPERTIES		
Specific Gravity:	0.91 – 0.95	-
Water Absorption:	0.3 mg (<0.02%)	BS 2782 502A

Resistant to:

Polypropylene sheet is resistant to aqueous solution of non-oxidising or inorganic compounds, most alcohols, ketones and mineral oils, it is however, affected by concentrated solution of oxidising agents, ethers, esters, chlorinated hydrocarbons, some aromatic compounds, petrol and paraffin.

Website For More Information: <https://psggrouppinternational.com/divisions/plastic-shims-gaskets/polymex-shim-stock/>

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