

Figure 4™ TOUGH-GRY 15

Production Rigid

An economical material for the production of rigid gray parts

Figure 4

PRODUCTION PARTS AT AN ECONOMICAL PRICE

Figure 4 TOUGH-GRY 15 is designed to offer high strength and stability for production applications. Economical pricing allows short run production parts to be produced at a fraction of the cost of traditional methods. With 35% elongation at break, this durable opaque gray material produces highly accurate components for consumer goods, aerospace and automotive industries, with digital molding productivity and cost-efficiency.

Liquid Material

MEASUREMENT	CONDITION	VALUE	
Viscosity	@ 25 °C (71 °F)	780 cps	
Color		Gray	
Solid Density	@ 25 °C (77 °F)	1.12 g/cm ³	0.04 lb/in ³
Liquid Density	@ 25 °C (77 °F)	1.04 g/cm ³	0.038 lb/in ³
Package Volume		1 kg bottle - Figure 4 Standalone 10 kg container - Figure 4 Production	
Layer Thickness (Standard Mode)		0.05 mm	0.002 in
Vertical Build Speed Standard Mode Draft Mode		41 mm/hr 68 mm/hr	1.6 in/hr 2.7 in/hr

APPLICATIONS

- Rapid design iteration
- Strong functional parts for:
 - Automotive styling parts
 - Form, fit and function testing
 - Durable assemblies and snap fits
 - Bezels, covers, cases
 - Master patterns
- Short-run manufacturing of rigid parts
- Consumer goods
- Ready for painting or plating

BENEFITS

- Strong, rigid production parts
- Stable mechanicals over time
- Economically priced

FEATURES

- High elongation at break
- Excellent humidity/moisture resistance
- Durable and strong
- Opaque gray color



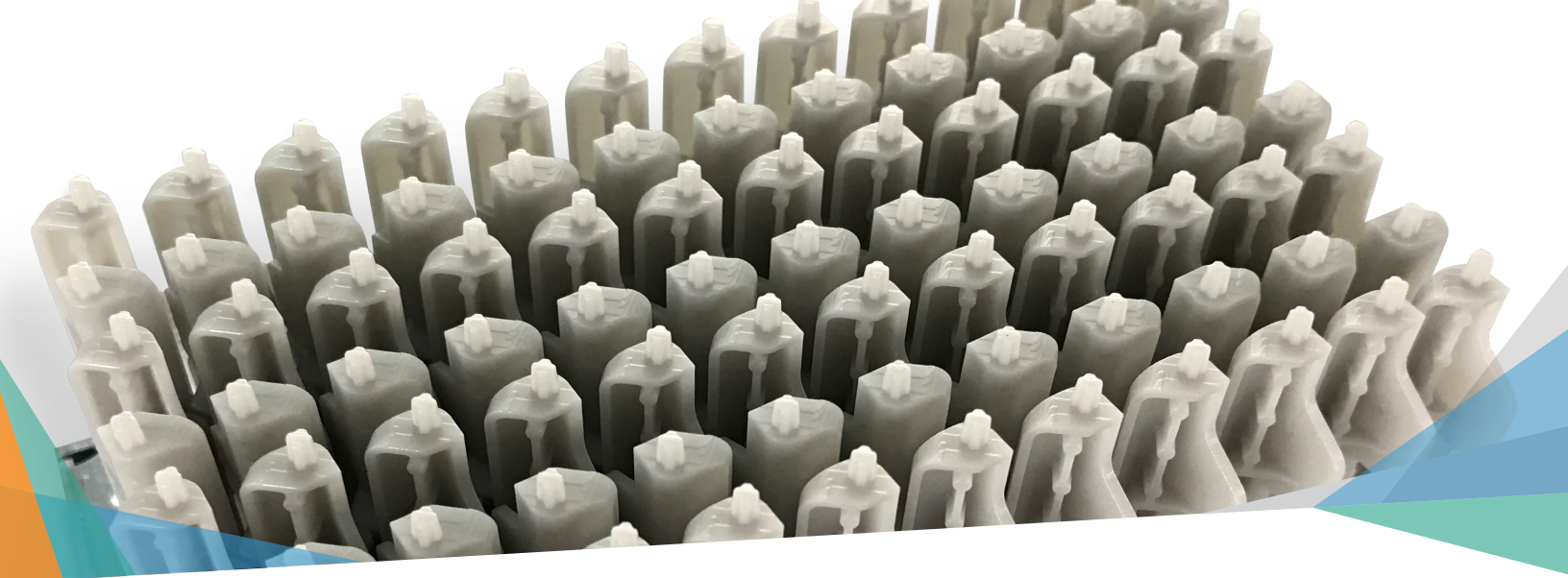


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Post-Cured Material

MECHANICAL PROPERTIES			
MEASUREMENT	CONDITION	METRIC	U.S.
Tensile Strength (MPa PSI)	ASTM D638	48	7020
Tensile Modulus (MPa KSI)	ASTM D638	2120	307
Elongation at Break	ASTM D638	35 %	
Elongation at Yield	ASTM D638	4 %	
Flexural Strength (MPa PSI)	ASTM D790	73	10590
Flexural Modulus (MPa KSI)	ASTM D790	1960	284
Notched Izod Impact Strength (J/m Ft-lbs/in)	ASTM D256	32	0.6
Unnotched Izod Impact Strength (J/m Ft-lbs/in)	ASTM D4812	599	11.2
Heat Deflection Temperature @ 0.45 MPa (66 PSI) @ 1.82 MPa (264 PSI)	ASTM D648	59 °C	138 °F
		51 °C	124 °F
Coefficient of Thermal Expansion (CTE) (ppm/°C ppm/°F)	ASTM E831	< Tg	53
		> Tg	88
Glass Transition (Tg)	DMA, E''	55 °C	130 °F
Hardness, Shore	ASTM D2240	82D	
Water Absorption	ASTM D570	0.37 %	



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