

# Figure 4™ TOUGH-GRY 15

Production Rigid

Figure 4

An economical material for the production of rigid gray parts

## 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 <sup>3</sup>	0.04 lb/in <sup>3</sup>
Liquid Density	@ 25 °C (77 °F)	1.04 g/cm <sup>3</sup>	0.038 lb/in <sup>3</sup>
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

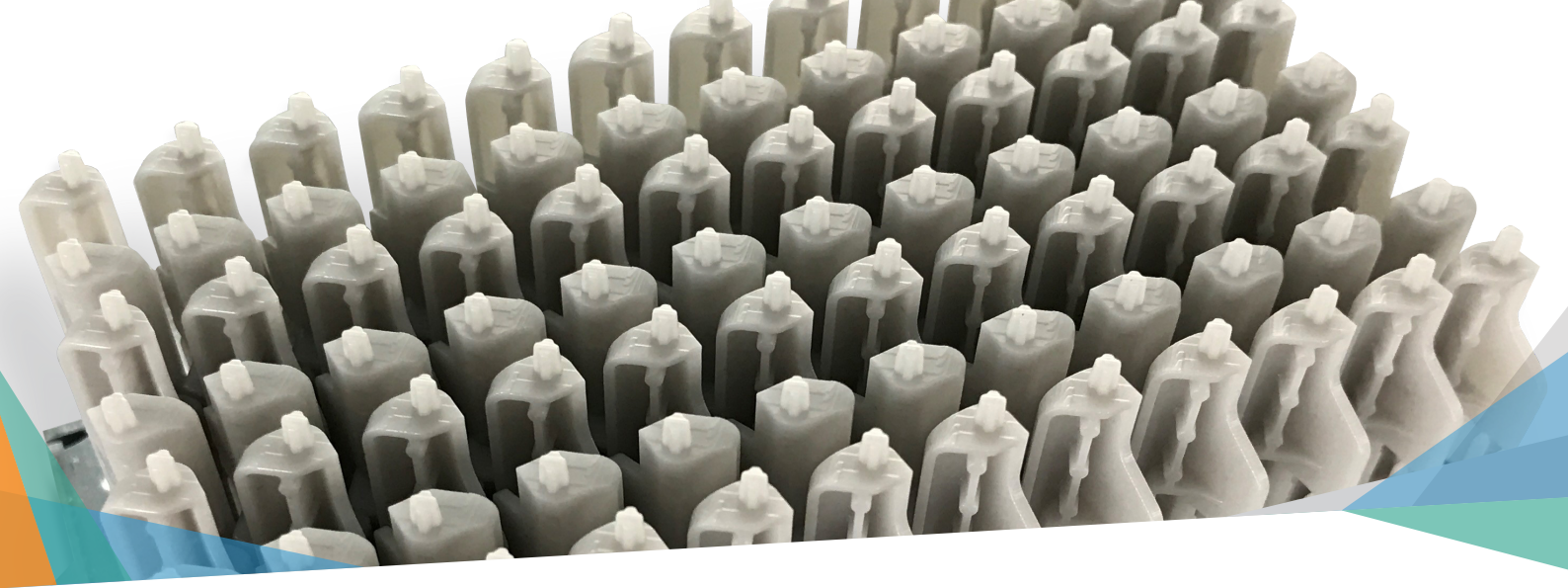
## BENEFITS

- 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) < Tg > Tg	ASTM E831	96	53
		158	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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