



# Figure 4™ TOUGH-GRY 10

Production Rigid

A high-speed material for the production of rigid gray parts

Figure 4

## PRODUCTION PARTS IN A FRACTION OF THE TIME

Figure 4 TOUGH-GRY 10 is capable of print speeds up to 100 mm/hour in a strong production plastic. With 25% elongation at break, it has the durability required for a broad range of applications. This dark gray plastic material is extremely stable, including under high humidity conditions.

### Liquid Material

MEASUREMENT	CONDITION	VALUE	
Viscosity	@ 25 °C (71 °F)	490 cps	
Color		Dark Gray	
Solid Density	@ 25 °C (77 °F)	1.11 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)		78 mm/hr	3.1 in/hr
Vertical Build Speed (Draft Mode)		104 mm/hr	4.1 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 for RTV molding or other uses
- Short-run manufacturing of rigid parts
- Consumer goods
- Ready for painting or plating

## BENEFITS

- Strong, rigid production parts
- Stable mechanicals over time
- High production speed

## FEATURES

- High elongation at break
- Excellent humidity/moisture resistance
- Durable and strong
- Up to 100 mm/hour vertical print speed
- Dark gray color





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## Post-Cured Material

MECHANICAL PROPERTIES				
MEASUREMENT	CONDITION	METRIC	U.S.	
Tensile Strength (MPa   PSI)	ASTM D638	50	7190	
Tensile Modulus (MPa   KSI)	ASTM D638	2180	317	
Elongation at Break	ASTM D638	25 %		
Elongation at Yield	ASTM D638	4 %		
Flexural Strength (MPa   PSI)	ASTM D790	75	10900	
Flexural Modulus (MPa   KSI)	ASTM D790	2070	300	
Notched Izod Impact Strength (J/m   Ft-lbs/in)	ASTM D256	29	0.54	
Unnotched Izod Impact Strength (J/m   Ft-lbs/in)	ASTM D4812	598	11.2	
Heat Deflection Temperature @ 0.45 MPa (66 PSI) @ 1.82 MPa (264 PSI)	ASTM D648	59 °C	138 °F	
		51 °C	123 °F	
Coefficient of Thermal Expansion (CTE) (ppm/°C   ppm/°F)	ASTM E831			
		< Tg	93	52
		> Tg	165	92
Glass Transition (Tg)	DMA, E''	58 °C	136 °F	
Hardness, Shore	ASTM D2240	81D		
Water Absorption	ASTM D570	0.34 %		



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