

Figure 4[™] TOUGH-GRY 10

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

Production Rigid

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 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		78 mm/hr 104 mm/hr	3.1 in/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







Figure 4[™] TOUGH-GRY 10

Production Rigid

Figure 4

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

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 51 °C	138 °F 123 °F		
Coefficient of Thermal Expansion (CTE) (ppm/°C ppm/°F) < Tg > Tg	ASTM E831	93 165	52 92		
Glass Transition (Tg)	DMA, E"	58 °C	136 °F		
Hardness, Shore	ASTM D2240	81D			
Water Absorption	ASTM D570	0.34 %			





www.3dsystems.com

Warranty/Disclaimer: The performance characteristics of these products may vary according to product application, operating conditions, or with end use. 3D Systems makes no warranties of any type, express or implied, including, but not limited to, the warranties of merchantability or fitness for a particular use.

© 2018 by 3D Systems, Inc. All rights reserved. Specifications subject to change without notice. 3D Systems and the 3D Systems logo are registered trademarks and Figure 4 is a trademark of 3D Systems, Inc.

3DS-40101 Rev A 06-18