

# Figure 4 Tough Black 20

## Production Rigid

Strong material with long term UV stability for production of black ABS like parts



### Applications

- Rapid design iteration
- Strong functional parts for:
  - Automotive styling parts
  - Consumer electronics components
  - Legacy replacement parts
  - Form, fit and function testing
  - Durable assemblies and snap fits
  - Bezels, knobs, brackets, covers, cases
- Master patterns for RTV/silicone molding
- Short-run manufacturing of rigid parts



### Physical Properties

Colour	Black
Type	ABS

### Liquid Material

Solid Density (g/cm <sup>3</sup> )	1.11
Layer Thickness (mm)	0.05

### Mechanical Properties

		TEST/ISO
Tensile Strength, Ultimate (MPa)	<b>40</b>	ASTM D638
Tensile Strength, at Yield (MPa)	<b>40</b>	
Tensile Modulus (MPa)	<b>1780</b>	
Elongation at Break (%)	<b>36</b>	
Elongation at Yield (%)	<b>4.6</b>	
Flexural Strength (MPa)	<b>61</b>	ASTM D790
Flexural Modulus (MPa)	<b>1650</b>	
Notched Izod Impact Strength (J/m)	<b>27</b>	ASTM D256
Unnotched Izod Impact Strength (J/m)	<b>1008</b>	ASTM D4812
Heat Deflection Temperature (°C)		ASTM D648
@ 0.45 MPa	<b>55</b>	
@ 1.82 MPa	<b>45</b>	
Co-efficient of Thermal Expansion (ppm/°C)		ASTM E831
<Tg	<b>83</b>	
>Tg	<b>173</b>	
Glass Transition (Tg)	<b>46°C</b>	ASTM E1640
Shore Hardness	<b>79D</b>	ASTM D2240
Water Absorption (%)	<b>0.31</b>	ASTM D570

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