DuraForm® PAx Black

Nylon Copolymer

High impact, high elongation, high recyclability SLS material with properties similar to injection molded plastics for tough, lightweight, production-grade parts.

Selective Laser Sintering (SLS)

PRODUCTION-GRADE HIGH IMPACT NYLON COPOLYMER WITH HIGH ELONGATION AND LONG-TERM STABILITY FOR TOUGH PLASTIC PARTS

DuraForm PAx Black is a nylon copolymer that offers properties similar to injection molded plastics and features high impact resistance with high elongation at break in any direction, including Z. Engineered for easy processing and high recyclability, DuraForm PAx Black is ideal for functional prototypes and end-use parts with good mechanical properties and long-term stability.

The low printing temperatures of DuraForm PAx Black contribute to high throughput when using this material, and its designation as a clean running material means low operator maintenance. With impressive long-term stability of over five years indoor, DuraForm PAx Black is among the top performing SLS materials for long-term use.

APPLICATIONS

- General purpose prototypes
- Orthotics
- Tooling handles and grips for use in tough, rugged environments
- Living hinges
- Liquid reservoirs per data sheet specifications
- Enclosures requiring high impact and high toughness

ADVANTAGES

- Durable and tough for true functional plastic parts
- High reuse rates reduce waste and decrease production costs
- Low temperature printing enables faster parts in hand
- Excellent long-term stability; 5+ years indoor for mechanical properties and color
- Vapor-honed parts improve smoothness and offer a sheen similar to injection molded plastics

Note: Not all products and materials are available in all countries — please consult your local sales representative for availability.

DuraForm PAx Black

THERMOPLASTIC POWDER MATERIAL		
METRIC	**METHOD**	
Color		Black
Blend Ratio	% Fresh	30%
SOLID MATERIAL		
METRIC	**ASTM METHOD**	**METRIC**
PHYSICAL		
Solid Density	ASTM D792	1.04 g/cm³
24 Hour Water Absorption	ASTM D570	
MECHANICAL		
Tensile Strength Ultimate	ASTM D638 Type I	40 MPa
Tensile Strength at Yield	ASTM D638 Type I	40 MPa
Tensile Modulus	ASTM D638 Type I	1500 MPa
Elongation at Break	ASTM D638 Type I	100%
Elongation at Yield	ASTM D638 Type I	5%
Flex Strength	ASTM D790	50 MPa
Flex Modulus	ASTM D790	900 MPa
Izod Notched Impact	ASTM D256	58 J/m
Izod Unnotched Impact	ASTM D4812	+400 J/m
Shore Hardness	ASTM D2240	
THERMAL		
Tg (DMA E")	ASTM E1640 (E"Peak)	
HDT 0.455MPa/66PSI	ASTM D648	110 °C
HDT 1.82MPa/264 PSI	ASTM D648	45 °C
CTE −40 to 15C	ASTM E831	
CTE 55 to 125C	ASTM E831	
UL Flammability	UL94	
ELECTRICAL		
Dielectric Strength (kV/mm) @ 3mm thickness	ASTM D149	
Dielectric Constant @ MkHz	ASTM D150	
Dissipation Factor @ MkHz	ASTM D150	
Volume Resistivity (ohm-cm)	ASTM D257	

*Tensile testing done at 50mm/min after timeout at 5mm/min per ASTM D638 standards

Complete data set will be available in Q4 2022.