Product Data Sheet 3D Printing **New Businesses**

PC+ABS

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3D printer filament

Product Description

Polycarbonate + Acrylonitrile Butadiene Styrene (PC+ABS) polymer blend is one of the most widely used engineering compounds that has high toughness, high impact strength and has high dimensional stability. Clariant optimizes PC+ABS with additives to achieve improved heat stability and resistance to thermo-oxidative degradation and yellowing.

Benefits

General properties

- Strong and tough engineering thermoplastic
- High impact strength
- High heat resistance
- Good low temperature ductility

Optimized benefits

- Reduced thermo-oxidative degradation
- Minimized undesired yellowing due to ultraviolet light
- Excellent flow characteristics

Applications*

- Mechanical and technical application parts that require strength and toughness
- Prototypes
- Tools, jigs, fixtures

*Subject to detailed product specifications.

Printing Parameters

- Print Temperature = 260-285°C
- Print Speed = 20-50 mm/s
- Bed Adhesion = a thin coating of PVP glue on glass or carbon fiber
- Bed Temperature = ideally heated up to 110°C (use an enclosed chamber if possible)
- Fan Settings = low

Note: parameters are dependent on printer used; Clariant tests were performed on an Ultimaker 3 extended, an Ultimaker S5 and a 3ntr A4 V2 printer.

Typical Property Values

Property	Typical Values				Units	Test Method	Test Specimen
	white	black	red[a]	natural			
RHEOLOGICAL PROPERTIES							
Melt flow rate, 260°C / 2.16 kg	6	7-9		7	g/10 min	ISO 1133	
Melt flow rate, 260°C / 5.0 kg	22	19-22		20	g/10 min	ISO 1133	
MECHANICAL PROPERTIES							
Tensile stress at yield, 50 mm/min	55	55	55	55	MPa	ISO 527	Injection molded
		52			MPa	ISO 527	3D printed XY / flat at 280°C
Tensile stress at break, 50 mm/min		48			MPa	ISO 527	3D printed XY / flat at 280°C
Tensile elongation at yield, 50 mm/min		5			%	ISO 527	3D printed XY / flat at 280°C
Tensile elongation at break, 50 mm/min	18	29	34	34	%	ISO 527	Injection molded
		7			%	ISO 527	3D printed XY / flat at 280°C
Tensile modulus (modulus of elasticity), 1 mm/min		1963			MPa	ISO 527	3D printed XY / flat at 280°C
Flexural modulus	2290	2380	2330	2300	MPa	ISO 178	injection molded
Flexural strength	83	86	89	85	MPa	ISO 178	Injection molded
Izod impact notched	55	53	51	58	MPa	ISO 180	Injection molded

THERMAL PROPERTIES							
Melting point	n/a	n/a	n/a	n/a		ISO 11357, DSC[b]	
Glass transition temperature	113, 146	113, 146	114, 144	113, 145	°C	ISO 11357, DSC[b]	
Heat deflection temperature at 1.8 MPa (A)	101	107	107	107	°C	ISO 75	Injection molded
		117			°C	ISO 75	3D printed XY / flat at 280°C
Heat deflection temperature at 0.45 MPa (B)	122	123	127	126	°C	ISO 75	Injection molded
		128			°C	ISO 75	3D printed XY / flat at 280°C
GENERAL PROPERTIES							
Density	1149	1150	1145	1144	kg/m^3	ISO 1183	
Volume		4.7	4.6		cm^3	ISO 1183	
pH		5.8	5.9				1% in H_2O
Water content - coulometric Karl Fischer		250	100		µg/g	ISO 12937	
Water content	0.03	0.03	0.02	0.02	%	ISO 15512	after drying at 120°C for 2 hours
non-volatile-matter content		99.8	99.8		%	ISO 3251	

[a]. Organic based color. [b]. DSC = Differential Scanning Calorimetry at 10°C/minute.

Note: results are generated according to the valid testing standards indicated above and the standard operating procedures used by the testing facilities.

Available Colors

Standard Color Range

- White
- Black
- Grey

ColorWorks® ColorForward® consumer color directions 2019

- MADE IN HUMAN - Protect the core (red)

Packaging and Handling

Delivery Form

1.75 mm and 2.85 mm diameter 3D printer filament.

Packaging

1 kg and 5 kg spools of 3D printer filament.
Custom sizes are available upon request.

Storage

Ideally store the 3D printer filament in a cool, dry place at temperatures between 5 to 25°C in a sealed container with the provided Clariant Desi Pak® desiccant bag. If the 3D printer filament has been exposed to moisture, please dry at 100-110°C for 3-4 hours with a vacuum or desiccant drying system if possible. Minimum shelf life is 1 year from the date of shipping when properly stored.

Safety & MSDS

Contact Us;
Please contact us for safety and regulatory details or the Material Safety Data Sheet (MSDS).

www.clariant.com

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* For sales to customers located within the United States and Canada the following applies in addition: No express or implied warranty is made of the merchantability, suitability, fitness for a particular purpose or otherwise of any product or service.