

Print this page 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 3nr A4 V2 printer.

#### Typical Property Values

Property	Typical Values				Units	Test Method	Test Specimen
	white	black	red <sup>a</sup>	natural			
<b>MECHANICAL PROPERTIES</b>							
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					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	kJ/m <sup>2</sup>	ISO 180	Injection molded
<b>THERMAL PROPERTIES</b>							
Melting point	n/a	n/a	n/a	n/a		ISO 11357, DSC <sup>b</sup>	
Glass transition temperature	113, 146	113, 146	114, 144	113, 145	°C	ISO 11357, DSC <sup>b</sup>	
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
<b>GENERAL PROPERTIES</b>							
Density	1149	1150	1145	1144	kg/m <sup>3</sup>	ISO 1183	
Volume		4.7	4.6		cm <sup>3</sup>	ISO 1183	
pH		5.8	5.9				1% in H <sub>2</sub> O
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	

<sup>a</sup>. Organic based color. <sup>b</sup>. 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)
- DO NOT DISTURB - ἀταραξία von has fidanken (green-blue)

### ColorWorks® ColorForward® consumer color directions 2020

- EYE AM WATCHED - Catch me if you can (orange)

## 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

### Contact Us;

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

[www.clariant.com](http://www.clariant.com)



Clariant International Ltd



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