



## Product Data Sheet 3D Printing

New Businesses

# Polyamide 12

## 3D printer filament

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### Product Description

Clariant Polyamide 12 3D printer filament uses a good flowing Polyamide 12. Polyamide 12 is often desired due to its better moisture resistance compared to Polyamide 6. Clariant improves the capabilities of Polyamide 12 via a Renol<sup>®</sup> masterbatch using Clariant Hostanox<sup>®</sup> P-EPQ<sup>®</sup> and Nylostab<sup>®</sup> S-EED<sup>®</sup>.

### Benefits

#### General properties

- Semi-crystalline thermoplastic
- Strong and tough engineering thermoplastic
- High impact strength

#### Optimized benefits

- Reduced thermo-oxidative degradation
- Increased stability at high processing temperatures
- Improved long term heat and stability to ultraviolet and visible light

#### Recommended Applications

- Mechanical and technical application parts

\*Subject to detailed product specifications.

### Printing Parameters

- Print Temperature = 190-230°C
- Print Speed = 20-40 mm/s
- Bed Adhesion = directly on glass, polyimide film or a directly on a PEI surface
- Bed Temperature = ideally heated up to 70°C
- Fan Settings = medium to high

Note: parameters are dependent on printer used; Clariant tests were performed on a 3ntr A4 V2 printer.

### Typical Property Values

| Property                                    | Typical Values |       |                  |         | Units    | Test Method                 | Test Specimen    |
|---|----------------|-------|------------------|---------|----------|-----------------------------|------------------|
|   | white          | black | red <sup>a</sup> | natural |          |                             |                  |
| <b>RHEOLOGICAL PROPERTIES</b>               |                |       |                  |         |          |                             |                  |
| Melt flow rate, 260°C / 2.16 kg             |                |       |                  |         | g/10 min | ISO 1133                    |                  |
| <b>MECHANICAL PROPERTIES</b>                |                |       |                  |         |          |                             |                  |
| Tensile stress at yield, 50 mm/min          |                |       |                  | 45      | MPa      | ISO 527                     | Injection molded |
| Tensile stress at break, 50 mm/min          |                |       |                  | 50      | MPa      | ISO 527                     | Injection molded |
| Tensile elongation at break, 50 mm/min      |                |       |                  | >50     | %        | ISO 527                     | Injection molded |
| Flexural modulus                            |                |       |                  |         | MPa      | ISO 178                     | Injection molded |
| Flexural strength                           |                |       |                  |         | MPa      | ISO 178                     | Injection molded |
| Izod impact notched                         |                |       |                  | 6       | MPa      | ISO 180                     | Injection molded |
| <b>THERMAL PROPERTIES</b>                   |                |       |                  |         |          |                             |                  |
| Melting point                               |                |       |                  | 178     | °C       | ISO 11357, DSC <sup>b</sup> |                  |
| Glass transition temperature                |                |       |                  |         | °C       | ISO 11357, DSC <sup>b</sup> |                  |
| Heat deflection temperature at 1.8 MPa (A)  |                |       |                  | 45      | °C       | ISO 75                      | Injection molded |
| Heat deflection temperature at 0.45 MPa (B) |                |       |                  | 115     | °C       | ISO 75                      | Injection molded |
| <b>GENERAL PROPERTIES</b>                   |                |       |                  |         |          |                             |                  |

|         |      |                   |          |
|---------|------|-------------------|----------|
| Density | 1183 | kg/m <sup>3</sup> | ISO 1183 |
|---------|------|-------------------|----------|

<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)

## 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 80°C for at least 2 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](http://www.clariant.com)



Clariant International Ltd



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