



## Kimya TPU-R 3D Filament

The Kimya **TPU-R** 3D filament belongs to the polyurethane family. Thermoplastic “-R” polyurethane (**TPU-R**) is formulated using recycled materials. It is a translucent filament with good elasticity. Furthermore, it offers a Shore hardness of 92A. It is used to print resistant and flexible parts. The Kimya TPU-R 3D filament is used in the electronics, automotive and consumer goods sectors. It offers the following properties:

- Flexible
- 100% made from recycled materials
- Complies with the **REACH standard**

2-year ARMOR warranty.

### FILAMENT PROPERTIES

| PROPERTIES                                     | TEST METHODS                          | VALUES                 |
|--|---------------------------------------|------------------------|
| Diameter                                       | INS-6712                              | 1,75 ± 0,1 mm          |
| Density  | ISO 1183-1                            | 1,14 g/cm <sup>3</sup> |
| Moisture rate                                  | INS-6711                              | < 1 %                  |
| Melt flow index (MFI)                          | ISO 1133-1 (@200°C – 5 kg)            | 42 - 45 g/10min        |
| Glass transition temperature (T <sub>g</sub> ) | ISO 11357-1 DSC (10°C/min - 90-190°C) | -33 °C                 |

### PRINT PARAMETERS AND SPECIMENS DIMENSIONS

| PRINTING DIRECTION | XY                 |
|--------------------|--------------------|
| Printing Speed     | 20-70 mm/s         |
| Infill             | 100% - rectilinear |
| Infill Angle       | 45°/-45°           |
| Nozzle Temperature | 210-250°C          |
| Bed T°             | 60-90°C            |

## PRINTED SPECIMENS PROPERTIES

|                              | PROPERTIES   | TEST METHODS | VALUES   |
|------------------------------|--|--------------|----------|
| <b>MECHANICAL PROPERTIES</b> | Tensile modulus  | ISO 37/2/500 | 55,2 MPa |
|                              | Tensile Strength   | ISO 37/2/500 | 27,7 MPa |
|                              | Tensile strain at strength   | ISO 37/2/500 | 0 %      |
|                              | Tensile Stress at Break  | ISO 37/2/500 | 27,4 MPa |
|                              | Tensile strain at break (type A)   | ISO 37/2/500 | 0 %      |
|                              | Flexural modulus   | ISO 178      | 45,6 MPa |
|                              | Flexural stress at conventional deflection (3,5% strain)*  | ISO 178      | 1,9 MPa  |
|                              | Charpy impact resistance   | ISO 180      | No Break |
|                              | Shore Hardness   | ISO 868      | 90A      |
| <b>Note 1</b>                | *Fin de l'essai à 5% d'allongement d'après la norme ISO 178 même si l'éprouvette ne rompt pas.   |              |          |
| <b>Note 2</b>                | Les données doivent être considérées comme des valeurs indicatives - Les propriétés peuvent être influencées par les conditions de production. |              |          |

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