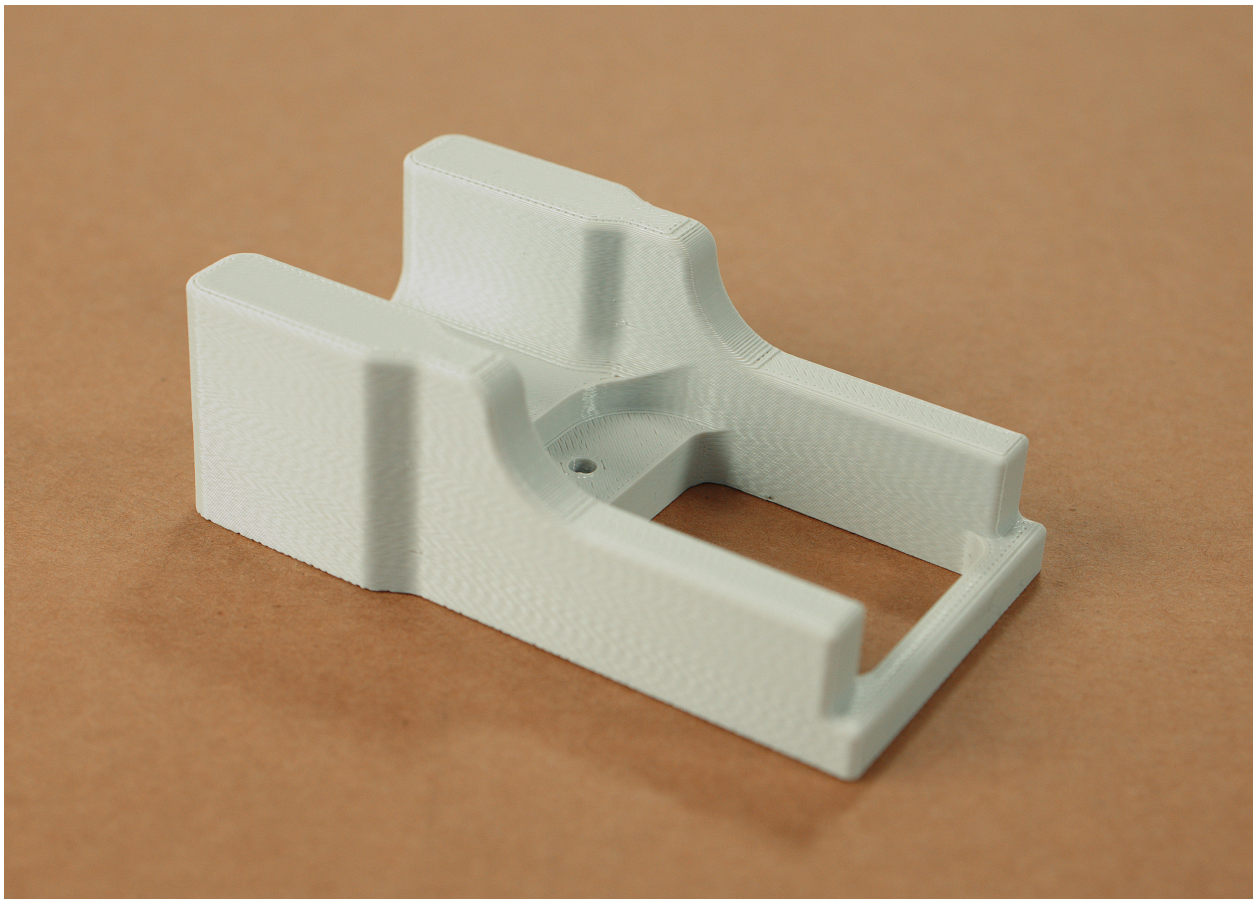
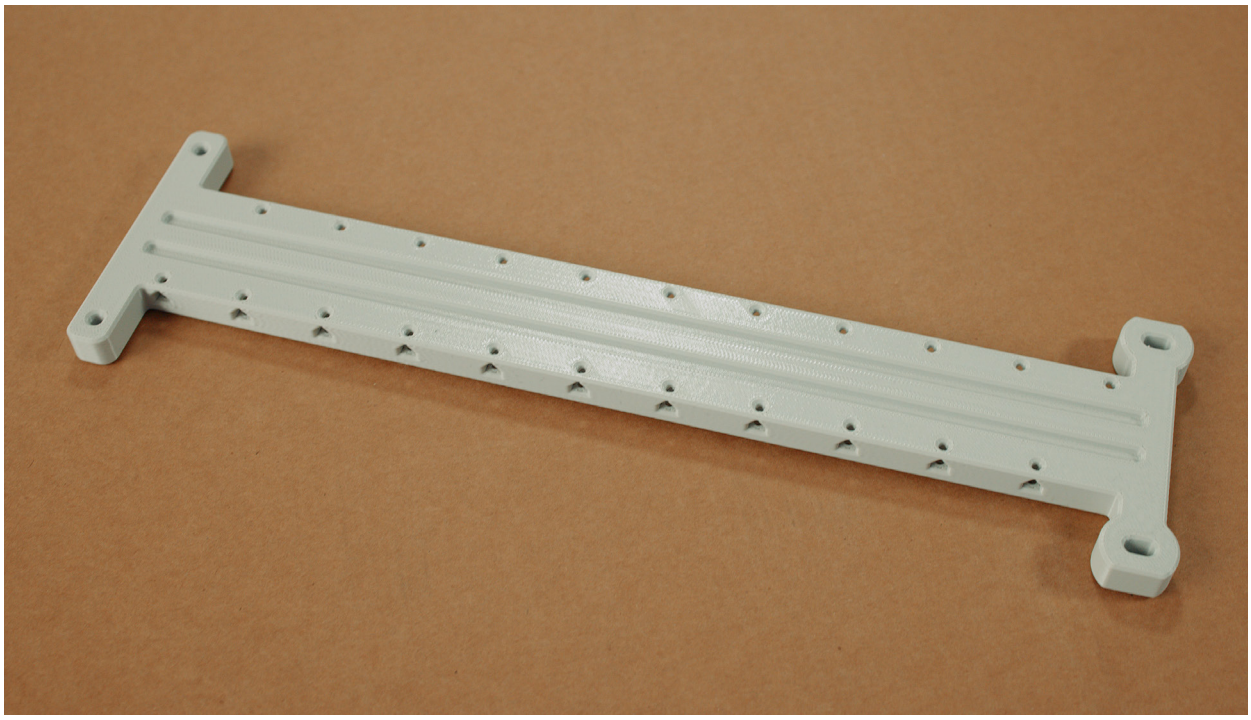
# Kimya PC-FR



## FDM Thermoplastic Filament

The information presented are typical values intended for reference and comparison purposes only.
They should no be used for design specifications or quality control purposes.



# Overview

Kimya PC-FR is a polycarbonate FDM® 3D printing filament with flame-retardant properties developed specifically for additive manufacturing. It retains the beneficial characteristics of standard polycarbonate such as dimensional stability, high glass transition temperature and high impact resistance but also meets European railway fire safety standard EN 45545-2 and the R1-HL3 hazard level.

# Contents:

# Ordering Information

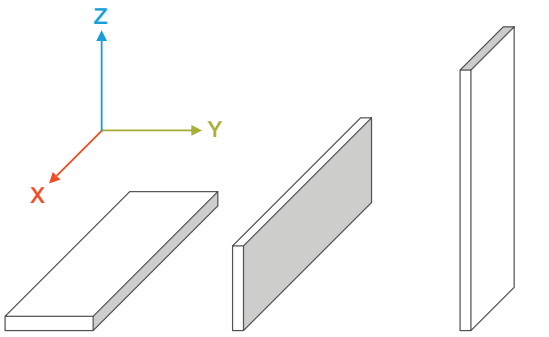
| Part Number | Description |
|---|---|
| **Filament Canisters** | |
| 355-70010 | PC-FR, 92 cu in. - Plus |
| 355-03120 | SR-100 Soluble Support, 92 cu in. - Plus |
| **Printer Consumables** | |
| 511-10401 | T16 tip |
| 511-10100 | T12SR100 tip |
| 325-00100 | Low temperature build sheet, 0.02 x 16 x 18.5 in. (0.51 x 406 x 470 mm) |

# Mechanical Properties

Samples were printed with 0.010 in. (0.524 mm) layer height on the Fortus 450mc. For the full test procedure please see the Stratasys Materials Test Procedure on www.stratasys.com.

### Print Orientation

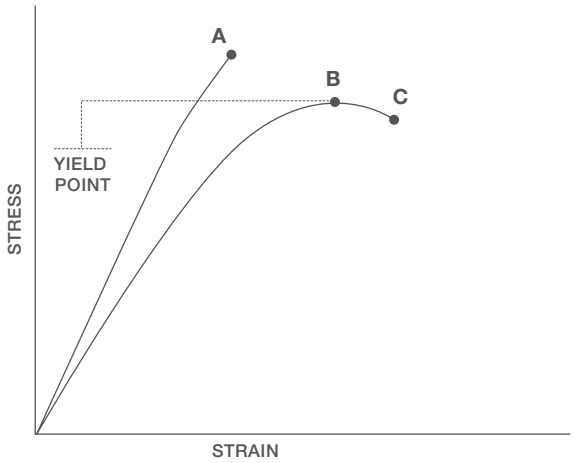
Parts created using FDM are anisotropic as a result of the printing process. Below is a reference of the different orientations used to characterize the material.




Flat (XY) On Edge (XZ) Upright (ZX)

### Tensile Curves

Due to the anisotropic nature of FDM, tensile curves look different depending on orientation. Below is a guide of the two types of curves seen when printing tensile samples and what reported values mean.




**A** = Tensile at break, elongation at break (no yield point)
**B** = Tensile at yield, elongation at yield
**C** = Tensile at break, elongation at break

| | | XZ Orientation[1] | ZX Orientation[1] |
|---|---|---|---|
| **Tensile Properties: ASTM D638** | | | |
| Yield Strength | MPa | 72.2 (3.0) | 33.1 (5.5) |
| | psi | 10500 (440) | 4800 (800) |
| Elongation @ Yield | % | 5.4 (0.50) | 1.6 (0.31) |
| Strength @ Break | MPa | 67.3 (2.8) | 32.9 (5.5) |
| | psi | 9770 (400) | 4770 (790) |
| Elongation @ Break | % | 6.7 (0.98) | 1.6 (0.30) |
| Modulus (Elastic) | GPa | 2.21 (0.029) | 2.18 (0.059) |
| | ksi | 321 (4.2) | 316 (8.5) |
| **Flexural Properties: ASTM D790, Procedure A** | | | |
| Peak Stress | MPa | 107 (3.0) | 72.8 (10.) |
| | psi | 15500 (440) | 10600 (1500) |
| Modulus | GPa | 2.53 (0.062) | 2.01 (0.026) |
| | ksi | 367 (9.0) | 292 (3.8) |
| **Impact Properties: ASTM D256, ASTM D4812** | | | |
| Notched | J/m | 87.5 (9.6) | 26.4 (5.9) |
| | ft*lb/in. | 1.64 (0.18) | 0.514 (0.11) |
| Unnotched | J/m | 2170 (530) | 39.0 (6.4) |
| | ft*lb/in. | 40.6 (10) | 0.731 (0.12) |

[1] Values in parenthesis are standard deviations.

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