

Technical Data Sheet

Ultracur3D[®] ST 45B

General information

Components

Reactive Urethane Photopolymer for Tough Applications

Product Description

Ultracur3D ST 45B (Tough product line) is a medium-viscous, highly reactive photopolymer for 3D applications resulting in tough multipurpose parts. It can be used to produce high performance functional parts by using stereolithography (SLA), digital light processing (DLP) or Liquid Crystal Display (LCD) machines. Ultracur3D ST 45B can fulfil the requirements of functional applications regarding high accuracy and mechanical strength, where existing 3D printing materials often show limitations.

Properties:

- High impact strength, high e modulus, high UV long-term stability of printed parts

Typical applications:

- Demo & functional end-use parts, performance prototypes, electrical casings, snap-fit parts

Delivery form & warehousing

Ultracur3D ST 45B was developed for UV curing using laser or other suitable UV light sources like UV LEDs. It is also sensitive to sunlight or intense daylight and should be handled accordingly, i.e. with light exclusion before application in the printing system. Store the photopolymer in an opaque container at room temperature. If stored under the mentioned conditions, the photopolymer should be used for within 12 months. For further instructions, please refer to the safety data sheet.

Product safety

Mandatory and recommended industrial hygiene procedures and the relevant industrial safety precautions must be followed whenever this product is being handled and processed. Product is sensitive to humid environment conditions. For more information please consult the corresponding Material Safety Data Sheets (MSDS).

For your information

Ultracur3D ST 45B is currently available in black. Material is not FDA conform.

Notice

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed. The safety data given in this publication is for information purposes only and does not constitute a legally binding MSDS. The relevant MSDS can be obtained upon request from your supplier or you may contact BASF 3D Printing Solutions GmbH directly at sales@basf-3dps.com.

General Properties	Norm	Typical Values
Viscosity at 30°C	Cone/Plate Rheometer ¹	215 mPas
Viscosity at 50°C	Cone/Plate Rheometer ¹	80 mPas

Tensile Properties	Norm	Typical Values
E Modulus	ASTM D638	2020 MPa
Tensile Strength at Yield	ASTM D638	49.9 MPa
Elongation at Yield	ASTM D638	4.7%
Elongation at Break	ASTM D638	56.3%

Flexural Properties	Norm	Typical Values
Flexural Modulus	ASTM D790	1700 MPa
Flexural Strength at 5% Strain	ASTM D790	62.5 MPa

Impact Properties	Norm	Typical Values
Notched Izod (Machined), -30°C	ASTM D256	31.5 J/m
Notched Izod (Machined), 23°C	ASTM D256	31.3 J/m

Thermal Properties	Norm	Typical Values
HDT at 0.45 MPa	ASTM D648	55°C
HDT at 1.82 MPa	ASTM D648	50°C

Hardness	Norm	Typical Values
Shore D	ASTM D2240	80

¹⁾ Determined with TA-Instrument DHR rheometer, cone/plate, diameter 60 mm, shear rate 100 s⁻¹