

HP 3D Filament ULTEM™ 9085 (by SABIC)

HP Industrial Filament (IF) 3D Printer 600 High Temperature (HT) Solution



Material overview

ULTEM™ 9085 is a high-performance polyetherimide (PEI) blend filament manufactured from ULTEM™ 9085 resin, designed for functional parts requiring strong thermal performance, dimensional stability, and flame-retardant behavior.

With a maximum continuous service temperature of 170°C and inherent UL94-V0 flame retardancy, it is suited for structural and interior components in regulated industries. The material combines thermal resistance and mechanical performance for elevated-temperature applications, and is engineered for high-temperature printing at a nozzle temperature of 360°C, plate temperature of 160°C, and build chamber temperature of 90°C.

Typical use cases

Suited for:

- Mass transportation structural and interior components (rail, bus)
- Aerospace interior parts requiring FAR25.853 compliance
- Automotive components in high-heat or chemically aggressive environments
- Functional prototypes and end-use parts requiring UL94-V0 flame rating

Regulatory¹

Certification / Approval	Scope
UL94-V0	Inherent flame retardancy of the raw material
FAR25.853	Aerospace flammability – referenced for raw material
OSU55/55	Aerospace heat release – referenced for raw material
EN45545 R6-HL3	Rail fire performance – referenced for raw material

Approvals referenced apply to the raw material. Customers are responsible for verifying finished printed parts against applicable requirements.

General properties¹

	Testing method	Typical value
Specific gravity	ISO 1183	1.28 g/cm ³
Water absorption	ISO 62	0.15 %
Moisture	ISO 62	%
Maximum permissible service temperature	UL746B	170 °C
Lower permissible service temperature	UL746B	-°C

Thermal properties¹

	Testing method	Typical value
Vicat-softening point	ISO 306	175 °C
Heat deflection temperature	ISO 75	169 °C
Coef. of linear thermal expansion	ISO 11359	0.65 °C ⁻¹ *10 ⁻⁴
Thermal conductivity at 20 °C	ISO 22007-4	- W/(m*K)
Glass transition temperature	ISO 3146	180°C
Melting temperature	ISO 3146	330-350°C

Mechanical properties¹

	Testing method	Typical value
Tensile strength at yield	ISO 527	94 MPa
Elongation at yield	ISO 527	6.7 %
Tensile strength at break	ISO 527	- MPa
Elongation at break	ISO 527	70%
Impact strength	ISO 179	no break kJ/m ²
Notch impact strength	ISO 179	10 kJ/m ²
Ball indentation	ISO 2039-1	115 N/mm ²
Shore-D	ISO 868	
Flexural strength	ISO 178	129 MPa
Modulus of elasticity	ISO 527	2439 MPa

Printing properties¹

	Typical value
Pressure nozzle temperature	360°C
Printing plate temperature	160 °C
Build chamber temperature	90 °C
Nozzle diameter (hardend steel)	0.4 mm
Print speed	45 mm/s
Fan speed (activated on layer 4)	30-35 %
Predrying temperature	120 °C
Predrying time	8 h

Material specifications¹

Product name	Weight supply	Diameter filament
HP 3D Filament ULTEM™ 9085 (by Sabic) Natural color	1 kg	1.75 mm

Process compatibility¹

Support material compatibility	HP 3D Filament ULTEM™ 9085
Compatible printer modules	HP IF 3D Printer 360 Module

Safety Data Sheet (SDS)*

A general Safety Data Sheet covering HP 3D printing materials is available here: hp3dfilaments.com/safetydatasheets

This document provides guidance on safe handling, storage, and disposal. For material-specific questions, please contact your HP AM representative.

1. Typical values provided by Filament Provider. These results have not been validated on the HP Industrial Filament (IF) 3D Printer 600 HT Solution. Values are indicative; actual results may vary depending on print profile and process conditions. Contact HP to develop customized print profiles optimized for your application.