



Ultrasint® PA6 FR

Halogen-Free Flame-Retardant PA6 for Advanced Applications

Ultrasint® PA6 FR is an advanced engineering polymer powder containing a flame-retardant (FR) additive. Combining excellent mechanical and thermal performance with flammability requirements, it is especially suitable for applications in the electronics and public transportation sector. The halogen-free formulation based on PA6 makes the material unique in the 3D printing industry. It thereby opens up completely new application fields in 3D printing of parts for flammability-sensitive use cases.

Benefits at a Glance

- Sustainable halogen-free FR solution
- Extra high rigidity
- Exceptional thermal resistance
- In-particle filler technology
- Color: Black

Example Applications

- Switchboard parts and other electronic components
- Media flow and storage parts (i.e. air ducts for buses or in aerospace)
- Jigs and fixtures for cables and pipes

Material Properties

Tensile Strength	41 MPa
Young's Modulus	2500 MPa
Elongation at Break	3 %
Charpy Impact unnotched	7 kJ/m ²
HDT B (0.45 MPa, dry)	207 °C

Key Features

Ultrasint® PA6 FR meets a broad spectrum of flammability ratings relevant in different application fields.

Electronics

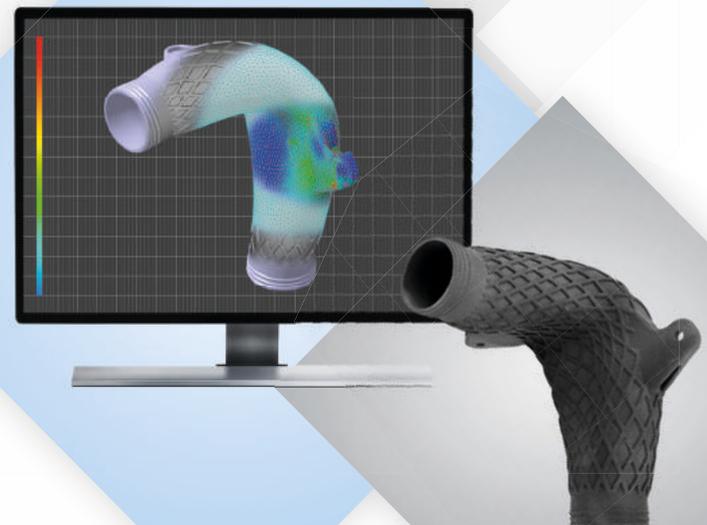
- UL 94 V-2 rating starting at 0.8 mm already
- Glow Wire Flammability Index (GWFI) up to 960 °C

Aerospace

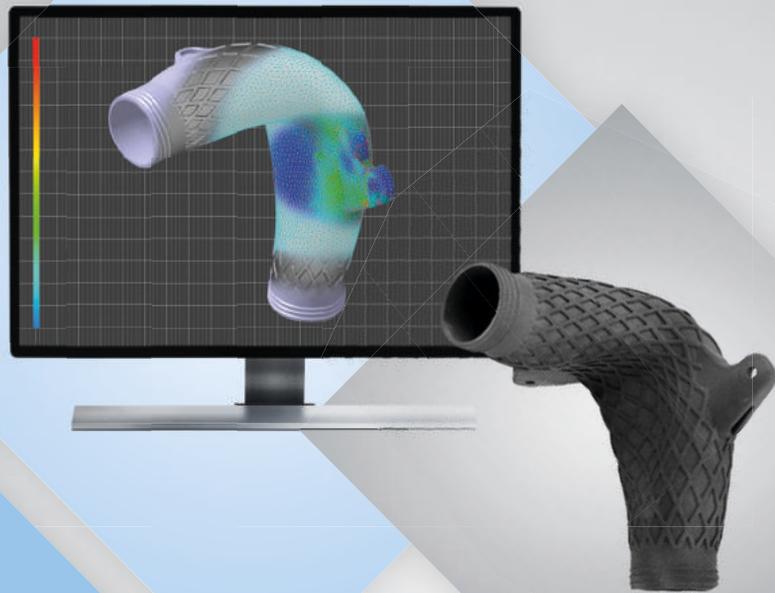
- Vertical Flammability (12 and 60 s), Smoke Density and Smoke Toxicity (FST) tests successfully passed

Buses

- ECE-R 118 App.7 test for use in public buses successfully passed
- Increased passenger safety



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Project reference Aerospace Air Duct

- This air duct printed using Ultrasint® PA6 FR was especially developed to combine lightweight design with optimum air flow behavior
- The optimized air flow patterns lead to much lower pressure drop compared to conventional designs
- The air duct can easily be adapted to any other individual assembly situation, direction or number of nozzles
- The material is resistant to high temperatures even for long time of operation
- Readily implemented material model allows for further part optimization via Foward AM Ultrasim® simulation and design services