



Radilon® Adline 3D printing filaments



HIGH PERFORMANCE
POLYMERS



RadiciGroup is one of the world's leading producers of a wide range of chemical intermediates, polyamide polymers, high performance polymers and advanced textile solutions.

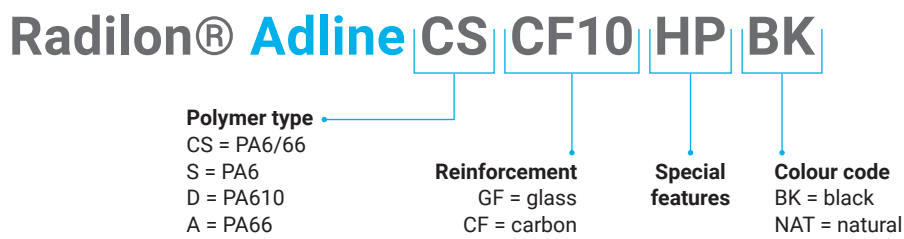
RadiciGroup High Performance Polymers business area offers a complete range of engineering polymers to meet the needs of many industries including automotive, electrical and electronics, and consumer and industrial goods.

Taking advantage of the Group's upstream integration and extensive knowledge of polymer formulation and compounding, RadiciGroup High Performance Polymers is ready to meet the needs of additive manufacturing technology with its new product range **Radilon® Adline 3D Printing Filaments for fused filament fabrication**.

Radilon® Adline Filaments are based on **Radilon® polyamide grades**, a well-known brand portfolio in the injection moulding and extrusion markets.

Specially developed low-warpage and high-dimensional-stability formulations guarantee the ease of printing with every Radilon® Adline grade, together with the semicrystalline nature of polyamide polymers. The products feature advanced properties such as mechanical, chemical and thermal resistance, thanks to our 40 years' expertise in compounding.

Radilon® Adline grade nomenclature



| Grade | Key properties | Applications |
|--|---|---|
| Radilon® Adline CS NAT Polyamide 6/66, natural colour | Low melting point of 195°C makes it suitable for most printers; low warpage; chemical resistance; ductility; high interlayer adhesion | Parts requiring good mechanical and chemical properties, together with semi-transparent and smooth surface appearance |
| Radilon® Adline CS CF10 HP BK Polyamide 6/66 - 10% carbon-fibre filled, black colour | Low melting point of 195°C makes it suitable for most printers; high dimensional stability; chemical resistance; strength and stiffness; high interlayer adhesion | Parts requiring high stiffness and good chemical properties, as well as excellent surface appearance |

Other Radilon® Adline grades based on polyamide 6 and bio-based polyamides are currently under development at RadiciGroup High Performance Polymers.

Application examples

Courtesy of Ciano Shapes

Car prototype

made of Radilon® Adline CS CF10



<https://cianoshapes.com/blog/2021/10/20/tesla-cybertruck-stampato-in-3d/>

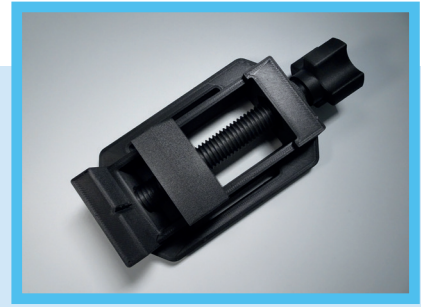
Pressure vessel component

made of Radilon® Adline CS



Clamp

made of Radilon® Adline CS CF10



<https://www.thingiverse.com/thing:2702273>

Chemical Resistance

of Radilon® Adline cs grades in comparison to other typical materials used in additive manufacturing

| Chemicals | PLA | ABS | PET | Adline CS |
|----------------------------|-----|-----|-----|-----------|
| Oils | - | - | + | ++ |
| Gasoline and diesel fuel | - | - | 0 | + |
| Detergents | 0 | 0 | + | ++ |
| Brake fluids | - | - | ++ | ++ |
| Cooling liquids | - | 0 | + | ++ |
| Halogenated compounds | - | - | 0 | + |
| Hydrocarbons and aromatics | - | - | 0 | + |
| Ethers | 0 | 0 | 0 | + |
| Esters | 0 | 0 | 0 | + |

++ Very good + Good 0 Fair - Poor

Printing parameters

Radilon® Adline 3D Printing Filaments have been tested with several open 3D printing systems to guarantee the ease of processing of the materials.

Radilon® Adline CS NAT and Radilon® Adline CS CF10 HP BK can be printed with similar process parameters.

It is suggested to use a hardened nozzle.



Nozzle temperature: 250-280°C
Bed temperature: 70-100°C



Print speed: 30-40 mm/s



Adhesion promoter: Magigoo glue



Drying: 8-12 h at 70-80°C

Please note: parameters are dependent on the printer used.