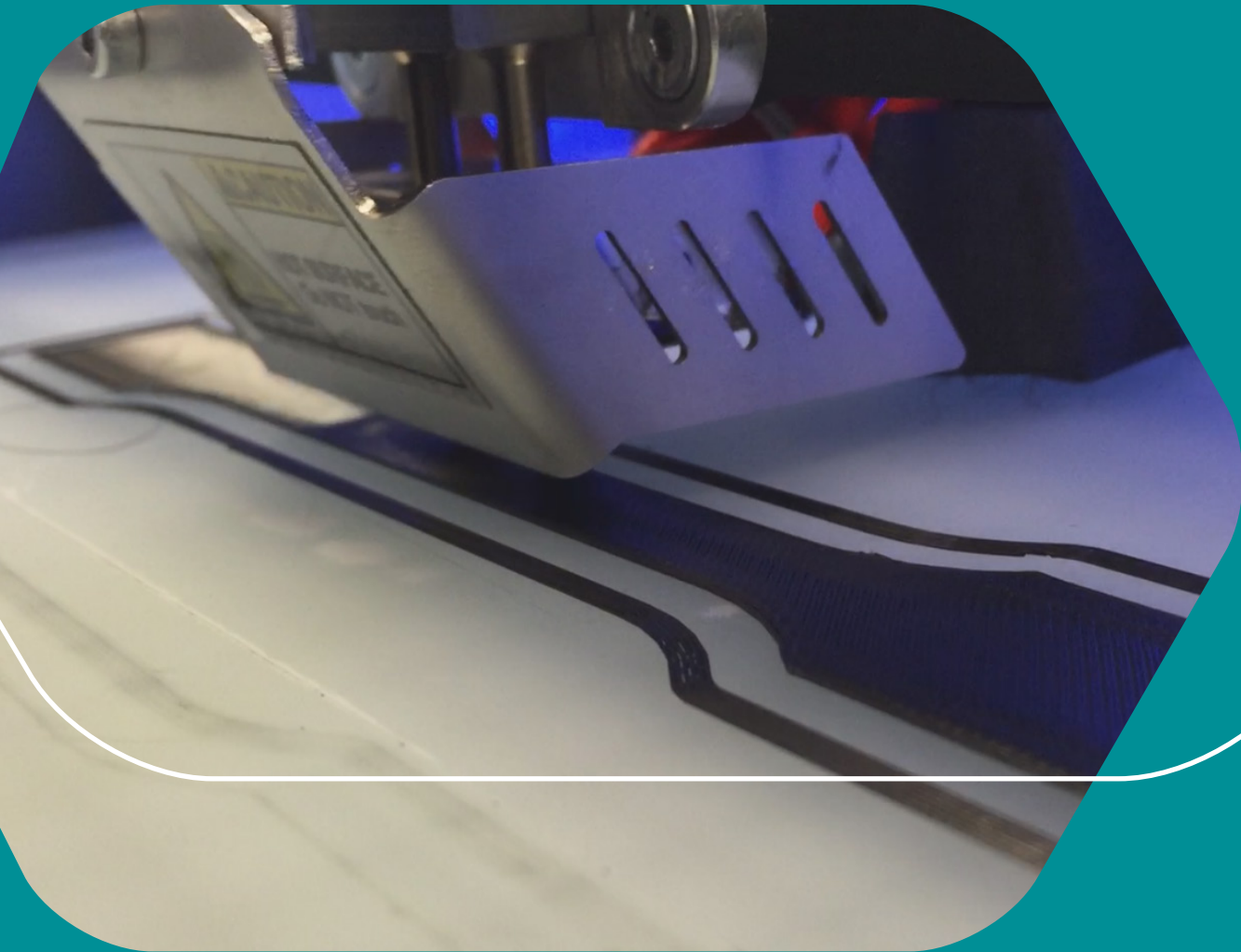


Creating Material Change



SynerG 3D Conductive Filament Technical Data Sheet



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SYNERG 3D Conductive Filament

Haydale's SynerG 3D conductive filament is particularly designed for 3D printing, rapid prototyping and extrusion. Improving the speed, strength, print quality and accuracy.

Chemical family: PLA polymer nanocomposite

Health and Safety: See the Material Safety Data Sheet (MSDS) and product labels before use.

The product specifications are listed below:

- Material: PLA Polymer/Functionalised Graphene
- Colour: Black
- Filament diameter: 1.75 ± 0.10 mm
- Volume resistivity: 0.60 ± 0.03 Ohm.cm
- Print temperature: 200 – 230°C
- Platform Temperature: 75 – 80°C

Physical properties

Typical Physical Data*	Injection Moulding Properties		Filament Properties	
	Measurement	Method/Notes	Measurement	Method/Notes
Melt Flow Index (190°C/ 9.8 kg)	8.87g/10 mins	ASTM D1238	8.87g/10 mins	ASTM D1238
Tensile Strength (25°C)	64.35 MPa	ASTM D638	62.45 MPa	Internal
Tensile Modulus (25°C)	1.7 GPa	ASTM D638	1.65 GPa	Internal
Elongation at Break (25°C)	7.28%	ASTM D638	6.18%	Internal
Notched Izod Impact Strength (25°C)	4.52 kJ/m ²	ASTM D256	-	N/A
Specific gravity (25°C)	1.22 g/cm ³	Internal	1.22 g/cm ³	Internal

* Typical properties only, not to be construed as specifications

Processing Information

Graphene Conductive Filament can be processed on all FDM/FFF type 3D printers. Graphene Conductive Filament is typically extruded using a nozzle temperature of 230°C and a heated bed temperature of 80°C is recommended for good first layer adhesion in 3D printing.

Storage

PLA is biodegradable thermoplastic polyester and will absorb moisture over time which can affect product performance. To ensure a good shelf life before use the 3D printing filaments are packaged under a controlled vacuum and sealed to prevent moisture ingress. It is recommended that filaments be kept in cool and dry conditions before use in 3D print melt processing.

The content supplied in this technical data sheet ("Information") supersedes all previous versions supplied. Version 1, September 2019

The Information should be used solely as guidance for the safe handling, storage, processing and/or use of the Product and is only typical of the methods described. The Haydale Group (Haydale Group means Haydale Limited, as a subsidiary of Haydale Graphene Industries plc., and any subsidiary or holding company from time to time and any subsidiary from time to time of any holding company of Haydale Limited) gives no express or implied warranty or guarantee or representation as to the behaviour of the Product described herein during any handling or storage or processing or use of the Product. To the extent permissible by law the Haydale Group shall under no circumstances whatever be liable whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any damage, including loss of profit, or any indirect or consequential loss arising under or in connection with any handling or storage or processing or use of the Product.



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