

## **Directa Plus launches graphene-based 3D printing material**

*New GRAFYLON® 3D filament, developed in collaboration with FILOALFA, is now commercially available and is the first 3D printing product to contain Graphene Plus*

(Lomazzo; Italy) 26 September 2016 – Directa Plus (“Directa” or “the Company”), one of the largest producers and suppliers of graphene-based products for use in consumer and industrial markets, is pleased to announce the launch of GRAFYLON® 3D, a graphene-enhanced filament for 3D printing. The new product has been developed in collaboration with FILOALFA, a division of Ciceri de Mondel that specialises in producing filaments used in 3D printing, and is now commercially available. This is the first 3D printing product to contain the Company’s Graphene Plus.

GRAFYLON® 3D is a new generation of polylactic acid-based (PLA) filament containing the Company’s graphene-based product. In 3D printing, hundreds or thousands of layers of material are “printed” layer upon layer using various materials, most commonly plastic polymers such as PLA filaments. The inclusion of Graphene Plus enhances the filament’s properties, whilst maintaining a competitive price. During testing, the following improvements in performance compared with non-graphene-based 3D filaments were observed:

- Improvement in surface finish, with a unique aesthetic effect
- Thermal conduction properties
- Elastic modulus improvement by 34%
- Tensile strength higher by 23%
- Elongation higher by 28%

Giulio Cesareo, CEO of Directa Plus, said: “We are delighted to launch GRAFYLON® 3D, in collaboration with FILOALFA, which is our first product in the 3D printing market. Our new filaments provide advantages over non-graphene-based filaments that open up new areas of application for 3D printing based on the incredible properties, such as conductivity and material strength. We believe they can revolutionise industry standards in the 3D printing field.

“Our collaboration with FILOALFA to bring another product to the market for commercial sale is further vindication of our stated strategy of developing solutions in conjunction with strategic partners. In addition, not only does FILOALFA bring significant know-how in the production of 3D printing filaments, but they also share some of our core values: in particular, our focus on health, safety and environmental protection. Our Graphene Plus is produced from a chemical-free process that has been independently certified as non-toxic and non-cytotoxic. We look forward to working with FILOALFA and enabling them to further differentiate their filaments through the incorporation of our graphene-based products.”

“GRAFYLON® 3D is only the first of a new generation of filaments containing graphene developed with Directa Plus,” added Antonio Berera, R&D manager of FILOALFA. “We are working with Directa to produce graphene-based products to be used with other polymeric bases for our filaments, and look forward to bringing to the market further products with unique properties that will differentiate them from competing solutions.”

GRAFYLON® 3D is available from today for purchase directly from the FILOALFA website and from FILOALFA’s dealers.

### **DIRECTA PLUS SpA**

Company under the management and coordination of Directa Plus PLC  
Via Cavour 2 - 22074 Lomazzo (CO) Italy  
Tax - VAT number and Trade register N. 04783370960 – Rea CO 0310025  
Issued Capital Stock Euro 1.485.611,00

## Enquiries

<b>Directa Plus plc</b>	
Michela Fumagalli, Communications Manager	+39 339 3713053
<b>Luther Pendragon Ltd</b>	
Harry Chathli, Claire Norbury, Alexis Gore	+44 207 618 9100

## About Directa Plus

Directa Plus is one of the largest producers and suppliers of graphene-based products for use in consumer and industrial markets worldwide. By incorporating Directa Plus' unique graphene blends, identified by the G+ brand, its customers can enhance the performance of their end products without significantly increasing their cost. Directa Plus graphene-based products are natural, chemical-free, sustainably produced and tailored to specific customer requirements for commercial applications such as smart textiles, tyres, composite materials and environmental solutions.

Established in 2005, the Company has a patented technology process and a scalable and exportable manufacturing model. It produces graphene-based products at its own factory in Lomazzo, Italy, and can set up additional production at customer locations to reduce transport costs, waste and time-to-utilisation. Directa Plus partners with customers to enable them to offer the high-performance benefits of graphene in their own products

## About FILOALFA

FILOALFA is a business unit of Ciceri de Mondel.

Established in 1917 Ciceri de Mondel has been having a leading role in the extruded plastic sheets market (HIPS, ABS, Methacrylate) for more than 40 years. At Ciceri de Mondel we are always looking for new challenges: our enthusiasm about 3D printing led us, in 2013, to start extruding plastic filaments.

The FILOALFA brand was born. Nowadays Ciceri de Mondel can count on three lines to extrude plastic sheets, a fully equipped colours' laboratory and 2 lines for the 3D filaments production.

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