



Cambridge
Nanosystems

CamGraph[®] Conductive Resin

Increasing the mechanical performance of CFRPs
with ultra-high-quality graphene

Polymer composites are radically improving our lives in a number of ways. For example modern aircraft have over 50% of their fuselage made up of carbon fibre reinforced plastics (CFRP) which allow longer flights and reduced fuel use. Advantages of polymer composites include lightweight (approx. 50% lighter than aluminium), high chemical resistance, high mechanical stability and ease of fabrication.

At FGV Cambridge Nanosystems, we are improving the properties of existing composites through the addition of our carbon nanomaterials. These nanomaterials are used to fabricate isotropic polymer composites with high electrical conductivity. In addition, our carbon nanomaterials improve the mechanical properties of the matrix material by at least 10%.

Advanced composites are now accounting for
than half the weight of modern aircraft



3700kg lighter

The potential weight saving per modern passenger aircraft due to the use of our resin, which is 10% stronger than commercially available alternatives.



Larger wind turbines are possible by making the blades lighter with our graphene enhanced resin.

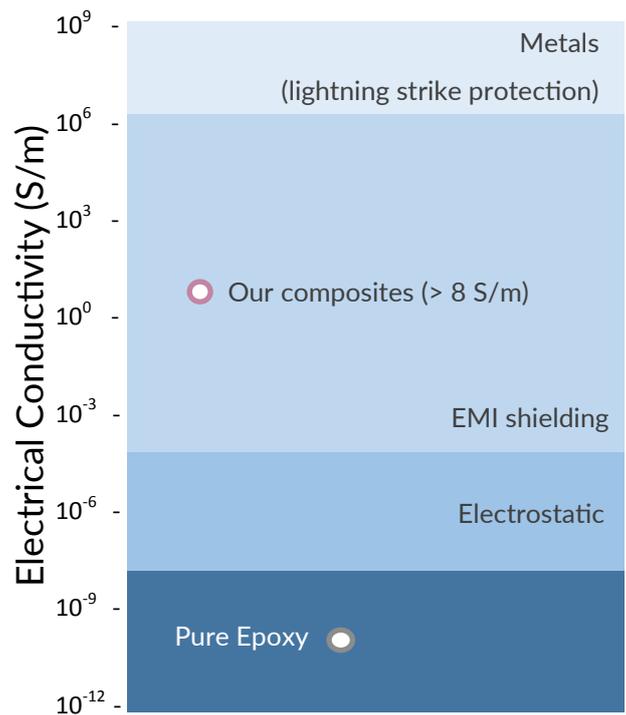
CamGraph[®] Conductive Resin

Shielding electronics from EMI
with ultra-high-quality graphene

Electromagnetic Interference (EMI) is a growing problem where external radiation interferes with the operation of sensitive electronics.

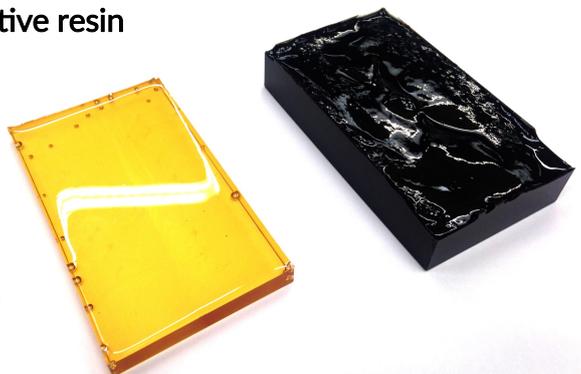
FGV Cambridge Nanosystems has developed an alternative to traditional EM shields. Our conductive resin can provide EMI shielding that is lightweight and has maximum design flexibility. Specific applications include:

- Autonomous systems in cars
- GPS units
- Laptops/smartphones/tablets



Technical Specifications (Matrix of Araldite LY 556 and XB 3473)

	Original epoxy	Conductive resin
Specific gravity	1.14	1.16
Electrical conductivity	10^{-11} S/m	>8 S/m
Carbon loading	0 wt%	<1 wt%
Tensile strength	70 MPa	78 MPa
Tensile modulus	5.6 GPa	5.7 GPa



The original epoxy on the left, and our graphene enhanced epoxy on the right.