



"WONDER MATERIAL" GRAPHENE COULD PROTECT AIRLINERS FROM LIGHTNING STRIKES

News / Airlines



Graphene could soon be protecting [airliners](#) from lightning strikes, with British company Haydale winning a contract to investigate practical uses for the "wonder material".

The Aim-listed business works out how to commercialise the recently discovered ultra lightweight material, which is stronger than steel yet incredibly flexible, and more conductive than copper.

Haydale's composites unit will investigate how graphene's electricity-conducting properties can be incorporated into the carbon fibre that is increasingly being used to build the wings and fuselages of modern airliners to reduce damage caused by lightning strikes.

Although carbon fibre is light and strong -- so aircraft made from it burn less fuel -- it is poor at conducting electricity, meaning that it can be damaged by lightning strikes -- a regular event for aircraft. Older aircraft made mainly from metal are less at risk.

To counter the threat of damage, aircraft manufacturers now put copper or aluminium meshes into carbon fibre structures to conduct electricity away from critical areas to where it can be discharged into the air without causing damage. However, including these materials adds cost and weight.

Haydale is now entering an 18-month research programme run by the National Technology Exploration Programme (NATEP) to develop highly conductive carbon fibre material containing

graphene that can withstand lightning strikes, as well as being cheaper and faster to build than current methods.

While the idea of using graphene to protect aircraft from lightning strikes has been suggested before, this is thought to be the first practical attempt do so.

Haydale will receive at least 100,000 pounds to fund the research project, which also involves BAE Systems and Airbus -- who are likely to use the results of the research in their jets -- as well as Cobham, which makes lightning strike protection systems for aircraft.

Graphene is a planar sheet of carbon atoms arranged in a hexagonal pattern. Stacked graphene sheets form graphite, used in pencils.

Gerry Boyce, managing director of Haydale's Loughborough-based composites unit, said: "This a great opportunity for us. The ability to add graphene to change one of the fundamental characteristics of the base resin, in this case, electrical conductivity, is an important development for composite engineers and could lead to a whole new generation of graphene-enhanced composite materials."

Working with major players in aerospace such as BAE and Airbus will also position Haydale at the forefront of an emerging technology, said Ray Gibbs, Haydale chief executive.

NATEP is being run under the UK's Aerospace Growth Partnership programme, which sees the Government support industries it recognises as being "winners" for the UK economy.

Bridget Day, NATEP deputy programme director, said: "To win funding, projects are required to have an end user - in this case Airbus and BAE - to make sure the technology is exploited and creates jobs."

"We are delighted to welcome Haydale and it's particularly pleasing to assist them with a practical application that uses the exciting properties of graphene in the aerospace industry. We see this as having a high potential for jobs growth and exports."

She added that NATEP -- which is helping UK companies develop 100 novel technologies -- believes that projects such as Haydale's show how smaller British companies can secure high value work with giants of the industry.

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