

2014

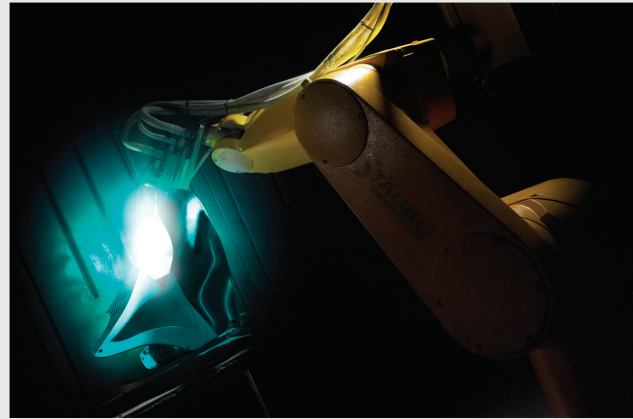
Innovation in Materials | Winner: Zircotec

Creation of a lightweight coating that is applied to composites to offer either conductivity or attenuation of electrical voltages and signals

Overview

The increasing electrical content of race cars has led to a requirement for increased EMC (electromagnetic compatibility) shielding and the rise of more complex electrical architectures with electrical powertrains may make EMC shielding even more essential. With motorsport focussed on lightweighting, engineers want to use composites for housing the electronics but their poor EMC performance has held this back. Zircotec created a lightweight coating that is applied to composites to offer either conductivity or attenuation of electrical voltages and signals range which could be plasma-sprayed. This gave a solution to minimise EMC and can be applied to composite, both thermosetting and thermoplastic components such as junction boxes and interface units, or can be used across cover plates and shields for better shielding. It can also be used on rapid prototype parts, sintered nylon and good quality glass fibre (stable to 100c) As well as minimising electrical interference, Zircotec also provides metallic coatings that can be applied to composites which are conductive and able to provide electrical safety for high voltage devices, i.e. by providing a connection to earth.

Activity at present focusses on high level motorsport notably in F1 and the World Endurance Championship but with a growing use of composites on road cars, this composite coating technology could enable more composites to be used in this area eliminating one of the barriers to entry. Away from automotive, Zircotec has been approached to use this technology in aerospace where composites are increasingly used for aircraft structures that house wiring looms and control units. Zircotec believes that the coating could be a good way to solve electrical interference problems without a weight penalty, something aerospace engineers are increasingly keen on as it would enable improvements in load capacity.



"Winning the Composites UK Innovation in Materials Award led to an immediate flow of interest in all of our coating solutions for composites and not just the product that won the award. This interest has been sustained and has reached far beyond the UK, involving a range of sectors, not just the automotive and motorsport sectors in which Zircotec has historically operated. The level of exposure for Zircotec and its products has been fantastic.

"Winning also led to significant new business and a continuing flow of enquiries. Our electrically conductive coating has found applications for EMC protection and for electrical grounding to prevent static build-up, including the control of magnetic fields in subsea power connectors, whilst our electrically insulating coating has found use in battery applications and in electrical safety. There has been significant interest in the fact that both of these coatings are entirely non-metallic thereby affording high levels of corrosion resistance, with the realisation that these coatings can even operate in extreme environments including salt water."

**Terry Graham, Managing Director,
Zircotec Group**

The Composites UK Industry Awards are presented at the black-tie dinner on the first Wednesday in November. The event is aligned with the Composites Engineering Show in Birmingham.

Keep an eye out for our annual nomination process every May for your chance to apply.

www.compositesuk.co.uk/awardsdinner