



LE MANS RADICAL AHEAD WITH INNOVATIVE USE OF CERAMICS

Plasma-sprayed ceramics are helping reduce the weight and increase the durability and efficiency of an LMP2 Le Mans race car.

When the Radical marque made its debut at the 2006 Le Mans 24-hour race, it was with a car that used technology originally developed by the nuclear energy industry to make it lighter, more durable and more efficient. Prepared by Rollcentre Racing, the LMP2 (prototype class) car used Zircotec's ceramic coatings plasma-sprayed onto carbon composite panels as well as in the more conventional application of exhaust system coating.

Rollcentre boss Martin Short had already used the Zircotec coating on the exhaust systems of a pair of Dallara-Judd V10 sports cars previously run by his team and had been impressed. "Engine bay temperatures were reduced and we did not have a single exhaust manifold problem," he says. The advanced coating, already relied upon by five Formula 1 teams, helps to retain heat within the exhaust system, increasing engine power and protecting the bodywork and local components from extreme exhaust temperatures.

The Zircotec process, originally developed to help manage extreme temperatures in nuclear power

stations, was used in two ways. The 421 Inconel exhaust system was plasma-sprayed with a ceramic thermal barrier to reduce thermal radiation. Due to LMP2 regulations the system is largely confined within the A frame, so heat build up could damage the local components and body panels and increase intake air temperature, which would reduce engine efficiency. The Zircotec coating manages all of these issues by dramatically reducing the amount of heat escaping through the side wall of the exhaust system.

A second challenge was that the hot exhaust gases are released from the pipes in a recessed area of the bodywork at the rear. It would be desirable to use carbon body panels in this area as they are much lighter, and easier to fabricate than stainless steel equivalents, but without a suitable coating their use is impractical in this harsh environment.

Rollcentre switched from stainless steel to carbon panels plasma-sprayed using Zircotec's process specifically designed for this type of application. Unlike other ceramic coatings, the plasma-sprayed coating is capable of lasting several seasons, will not burn or flake, and retains its performance even in the harshest motorsport environment.



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