



Ref IP117eB

FIRE RESISTANT COATINGS FOR COMPOSITES

Indestructible Paint Ltd. recently carried out a laboratory programme, on behalf of an Italian aerospace company. The programme, now successfully completed, was to produce a coatings system that met the company's stringent fire resistance requirements.

Based at Casoria, near Naples, the company* manufacture aircraft engine nacelles from 2 mm thick GFPM composite, for a number of aircraft types.



Nacelle installation

The specification for these components requires coatings that comply with AC20-135, providing fire protection for five minutes before burn-through.

Indestructible Paint's laboratories had previously carried out comparative tests with its widely used IP9189 intumescent coating against a newly developed formulation.

The new material, code IP1265, proved to

have substantially better thermal barrier characteristics than IP9189 with the added benefit that it did not intumesce as much.

In addition, the level of 'char' was thinner, providing more stability in windy conditions – properties that would be especially significant for this particular application.

However, Indestructible Paint's previous experience in this field indicated that it would be necessary to employ a combination of coatings to obtain the desired level of protection.

Accordingly, a number of composite test panels were coated on the weave side (hence the use of a primer-filler), with six different systems each in combination with the new material.

The most successful of these employed: -

1 coat IP9064	- clear 2 pack epoxy seal coat	25 microns	dry film thickness
1 coat 50015 R2	- 2 pack epoxy primer-surfacer	50 microns	" " "
1 coat 50019	- 2 pack epoxy thermal barrier/filler	350 microns	" " "
1 coat IP6	- 2-pack polyurethane finish	50 microns	" " "

Several coats of the new material, IP1265, a 2 pack epoxy thermal intumescent coating, were applied prior to the final IP6 finishing coat, to give a dry film thickness of 1000-1200 microns. ↓

This, plus the rest of the multi-coat system, provided a total film thickness of at least 1475 microns.

The result, using this combination, was a much higher level of performance than requested showing no burn-through even after ten minutes - twice that required by the specification.

Even though the flame temperature was measured at more than 900° C during the tests, the coating system prevented the inside temperature exceeding 350° C.

As a result of this project, the new coating system is now undergoing extended technical assessment and pre-production trials in Italy.

<<>>

** In this instance, as is very often the case, Indestructible Paint Ltd are not allowed to name the names of the aircraft and aero engine manufacturers, their sub-contractors or the type/s of aircraft involved.*

For more information about the coatings mentioned in this news release, or any other of the company's wide range of products, please contact Indestructible Paint Ltd:-

Telephone 44 (0) 121 702 2485 Fax 44 (0) 121 778 4338

email: sales@indestructible.co.uk

www.indestructible.co.uk
