

Properties of aeronautical grade epoxy resins and composites containing graphene related materials

C. Merino¹

T. Blanco-Varela², A. Butragueño², S. Blanco¹, J. López-Puente³, J.A. Artero-Guerrero³, R. del Cuvillo³, M. R. Gude⁴, V. García-Martínez⁴, A. Reguero⁵.

¹ Grupo Antolin Ingeniería SA, Ctra. Madrid-Irún, km. 244.8, 09007 Burgos, Spain

² Airbus Operations SL, Paseo John Lennon, 28906 Getafe, Spain

³ Univ. Carlos III Madrid, Av. Universidad 30, 28911 Leganés, Spain

⁴ FIDAMC, Av. Rita Levi-Montalcini 29, 28906 Getafe, Spain

⁵ AERNNOVA, Polígono. Parque Tecnológico 1A, 45200, Toledo, Spain

cesar.merino@grupoantolin.com

Aeronautical grade epoxy resins loaded with different concentrations and types of graphene related materials (GRM) were studied and used for the manufacture of laminate composites moulded by Resin Transfer Moulding (RTM) with carbon fibre (CF) fabric.

The cure degree of the resin, its rheological properties and the glass transition temperature were not significantly modified by the addition of GRM.

From the mechanical point of view, compression after impact properties were improved despite of the difficulties of manufacturing this kind of high-performance hierarchical composites avoiding the so-called filtering effect of the GRM by the CF fabrics during the resin injection process [1].

An Airbus A350 XWB Horizontal Tail Plane Leading Edge prototype containing GRM could be properly manufactured by RTM.

References

- [1] Filippo Valorosi, Enea De Meo, Tamara Blanco-Varela, Brunetto Martorana, Antonino Veca, Nicola Pugno, Ian A. Kinloch, George Anagnostopoulos, Costas Galiotis, Francesco Bertocchi, Julio Gomez, Emanuele Treossi, Robert J. Young, Vincenzo Palermo, *Composites Science and Technology* 185 (2020) 107848
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Figures



Figure 1: Horizontal Tail Plane Leading Edge prototype containing GRM manufactured by RTM

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