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Residual mechanical properties of carbon fibre reinforced thermoplastics with thin-ply prepreg after simulated lightning strike

Shinichiro Yamashita^{a,*}, Yoshiyasu Hirano^b, Takeo Sonehara^c, Jun Takahashi^a, Kazumasa Kawabe^d,
Tetsuhiko Murakami^d

^a *Department of Systems Innovation, School of Engineering, The University of Tokyo, 7-3-1, Hongo, Bunkyo-ku, Tokyo 113-8656, Japan*

^b *Structure and Advanced Composite Research Unit, Aeronautical Technology Directorate, Japan Aerospace Exploration Agency, 6-13-1, Osawa, Mitaka-shi, Tokyo 181-0015, Japan*

^c *Shoden Corporation, 365, Sanno-cho, Inage, Chiba 263-0002, Japan*

^d *Industrial Technology Center of Fukui Prefecture, 61, Kawaiwashizuka-cho, Fukui-city 910-0102, Japan*

* *Corresponding author: Tel: +81-3-5841-0865, Email: yamashita-shinichiro@cfrtp.t.u-tokyo.ac.jp*

ABSTRACT

This study experimentally examined the residual mechanical properties of a carbon-fibre/polyamide-6 laminate and randomly-oriented carbon-fibre strand (ROS) thermoplastic composites with thin-ply prepreg after a simulated lightning strike, and compared the results with those of a carbon-fibre/epoxy laminate fabricated from thick-ply prepreg. The damage was characterized by visual inspection, ultrasonic scanning, and optical microscopy. The residual mechanical properties were evaluated using a four-point flexural test. The flexural strength of the carbon-fibre/epoxy laminate was considerably reduced due to delamination, whereas the carbon-fibre/polyamide-6 laminate with a thin-ply prepreg exhibited improved retention of

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