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JAPANESE INDUSTRIAL STANDARD

**Testing methods for interlaminar
fracture toughness of carbon
fibre reinforced plastics**

JIS K 7086^{—1993}

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by

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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interlaminar fracture toughness of
carbon fibre reinforced plastics

K 7086-1993

1. Scope This Japanese Industrial Standard specifies testing methods for the interlaminar fracture toughness of carbon fibre reinforced plastics (hereafter referred to as "CFRP").

Remarks 1. These testing methods cover the determination of the interlaminar fracture toughness of laminated CFRP's reinforced by unidirectional or woven materials.

2. The deformation mode I as the open mode and II as the edge-sliding mode, respectively, are the subjects of this Standard.

3. The standards cited in this Standard are as follows:

JIS B 0601 Surface roughness — Definitions and designation

JIS B 0621 Definitions and designations of geometrical deviations

JIS B 7502 Micrometer callipers for external measurement

JIS B 7507 Vernier, dial and digital callipers

JIS K 6900 Glossary of terms used in plastic industry

JIS K 7072 Preparation of carbon fibre reinforced plastic panels for test purpose

JIS K 7074 Testing methods for flexural properties of carbon fiber reinforced plastics

JIS K 7100 Standard atmospheres for conditioning and testing of plastics

JIS Z 8401 Rules for rounding off of numerical values

2. Definitions For the main terms in this Standard the definitions in JIS K 6900 apply, and the rest of the terms shall be as follows:

(1) interlaminar fracture toughness The critical value of the energy required to create a unit area of a interlaminar delamination crack.

(2) crack opening displacement (δ) Relative movement between the upper and lower crack surfaces, and hereafter referred to as "COD".

(3) deformation mode The type of the relative movement between crack surfaces consisting of the three basic modes. In mode I, the opening mode, the relative movement is perpendicular to the crack surfaces. Mode II, the edge sliding mode, refers to the deformation mode where the movement is parallel to the crack surfaces and perpendicular to the crack tip line. In mode III, the tear mode, the movement is parallel to the crack surfaces and the crack tip line.