

Abstract Submitted
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Deformation Behavior during Processing in Carbon Fiber Reinforced Plastics SHINJI OGIHARA, Tokyo University of Science, SATOSHI KOBAYASHI, Tokyo Metropolitan University — In this study, we manufacture the device for measuring the friction between the prepreg curing process and subjected to pull-out tests with it. The prepreg used in this study is a unidirectional carbon/epoxy, produced by TORAY designation of T700SC/2592. When creating specimens 4-ply prepreps are prepared and laminated. The 2-ply prepreps in the middle are shifted 50mm. In order to measure the friction between the prepreg during the cure process, we simulate the environment in the autoclave in the device, and we experiment in pull-out test. Test environment simulating temperature and pressure. The speed of displacement should be calculated by coefficient of thermal expansions (CTE). By calculation, 0.05mm/min gives the order of magnitude of displacement speed. In this study, 3 pull-out speeds are used: 0.01, 0.05 and 0.1mm/min. The specimen was heated by a couple of heaters, and we controlled the heaters with a temperature controller along the curing conditions of the prepreg. We put pressure using 4 bolts. Two strain gages were put on the bolt. We can understand the load applied to the specimen from the strain of the bolt. Pressure was adjusted the tightness of the bolt according to curing conditions. By using such a device, the pull-out test performed by tensile testing machine while adding temperature and pressure. During the 5 hours, we perform experiments while recording the load and stroke. The shear stress determined from the load and the stroke, and evaluated.

Shinji Ogihara
Tokyo University of Science

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