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**Composites and reinforcements
fibres — Carbon fibre reinforced
plastics (CFRPs) and metal assemblies
— Characterization of durability of
adhesive interfaces by wedge rupture
test**

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Foreword

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*.

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Introduction

This document specifies a method for evaluating the durability of adhesive interfaces in the bonded assemblies of carbon fibre reinforced plastics (CFRPs) and metals by a wedge test with a double cantilever beam (DCB) specimen under specified environmental conditions. The wedge rupture test force the crack to propagate along the CFRP/adhesive or metal/adhesive interfaces, or within the adhesive layer. This test method provides a quantitative value for evaluating the effect of a harsh environmental condition on the durability of adhesive interfaces as an interfacial fracture energy. This method is intended for testing only those bonded plates used in bonding carbon fibre reinforced plastics (CFRPs) to metal assemblies.

The potential benefits to the users of CFRP-metal assemblies of implementing the durability of adhesive interfaces in the bonded plates of carbon fibre reinforced plastics (CFRPs) to metal assemblies based on this document are:

- a) expanding CFRP applications to the fields of the combinations with metallic components;
- b) the detection or the prevention of physical properties loss - such as ion migration and time-related degradation in sealant film, injected calking layer and glass fibre reinforced plastics (GFRPs) layer;
- c) demonstrating the conformity to specified conditions for type certification requirements in the engineering such as aircraft developments;
- d) evaluating the procedures for maintenance, repair and overhaul (MRO) in the engineering operations such of CFRP aircrafts.

It is not the intent of this document to imply the need for:

- omitting relevant field tests for CFRP related engineering;
- generally specifying the dimensions of test specimen to represent CFRPs related bonded or fastened structures;
- superimposing test results for specific applications of the parameters that exceed the range of this document.

