

ISO 25217:2009-05 (E)

Adhesives - Determination of the mode 1 adhesive fracture energy of structural adhesive joints using double cantilever beam and tapered double cantilever beam specimens

Contents		Page
Foreword		iv
1	Scope	1
2	Normative references	1
3	Symbols and abbreviated terms	1
4	Principle	3
5	Apparatus	3
6	Specimens	3
6.1	Number of specimens	3
6.2	Conditioning	4
6.3	Manufacture of adhesive joint specimens	4
6.4	Measurement of specimen dimensions	6
6.4.1	DCB substrates	6
6.4.2	TDCB substrates	6
6.4.3	DCB and TDCB substrates	6
6.5	Preparation of specimens	7
7	Procedure	7
7.1	Test set-up and data recording	7
7.2	Initial loading (the precracking stage)	7
7.3	Re-loading: Testing from the mode I precrack	8
7.4	Measurement of machine compliance	9
8	Data analysis	9
8.1	Determination of the raw data from the load-displacement trace	9
8.1.1	General	9
8.1.2	Initiation values	9
8.1.3	Propagation values	10
8.2	Determination of GIC	10
8.2.1	General	10
8.2.2	Double cantilever beam (DCB)	10
8.2.3	Tapered double cantilever beam (TDCB)	12
9	Test report	13
9.1	Test report for the DCB test	13
9.2	Test report for the TDCB test	14
Annex A (informative) Measurement of test system compliance		16
Annex B (normative) Procedure to follow when unstable or "stick-slip" crack growth is observed during the fracture test		18
Annex C (normative) Procedure to detect the occurrence of plastic deformation during a DCB or TDCB adhesive joint test		19
Annex D (informative) Summary of background theory		20
Bibliography		24