

# DRAFT INTERNATIONAL STANDARD

## ISO/DIS 15024

ISO/TC 61/SC 13

Secretariat: JISC

Voting begins on:  
2022-05-02

Voting terminates on:  
2022-07-25

---

---

### Fibre-reinforced plastic composites — Determination of mode I interlaminar fracture toughness, GIC, for unidirectionally reinforced materials

*Composites plastiques renforcés de fibres — Détermination de la ténacité à la rupture interlaminaire en mode I, GIC, de matériaux composites à matrice polymère renforcés de fibres unidirectionnelles*

ICS: 83.120

ISO/DIS 15024 - Preview only Copy via ILNAS e-Shop

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.



Reference number  
ISO/DIS 15024:2022(E)

© ISO 2022



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

	Page
Foreword.....	iv
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms and definitions.....</b>	<b>1</b>
<b>4 Principle.....</b>	<b>2</b>
<b>5 Apparatus.....</b>	<b>6</b>
5.1 Test machine.....	6
5.1.1 General.....	6
5.1.2 Speed of testing.....	7
5.1.3 Fixture.....	7
5.1.4 Load and displacement measurements.....	7
5.1.5 Recorder.....	7
5.2 Load blocks or piano hinges.....	7
5.3 Measuring apparatus.....	7
5.4 Travelling microscope (optional).....	7
5.5 Non-adhesive insert film.....	7
5.6 Ancillary equipment.....	8
<b>6 Test specimen.....</b>	<b>8</b>
6.1 Test plate preparation.....	8
6.2 Specimen preparation.....	8
6.2.1 Preferred specimens.....	8
6.2.2 Alternative specimens.....	9
6.3 Checking and measurement of the test specimens.....	9
6.4 Attachment of loading points.....	9
6.5 Measurement of delamination length.....	9
<b>7 Number of specimens.....</b>	<b>9</b>
<b>8 Conditioning.....</b>	<b>10</b>
<b>9 Test procedure.....</b>	<b>10</b>
9.1 Test set-up.....	10
9.2 Initial loading.....	10
9.3 Re-loading.....	11
<b>10 Calculation of <math>G_{IC}</math>.....</b>	<b>11</b>
10.1 Interpretation of test results.....	11
10.2 Data reduction.....	12
10.2.1 General.....	12
10.2.2 Method A: Corrected beam theory (CBT).....	12
10.2.3 Method B: Modified compliance calibration (MCC).....	13
10.3 Data sheets, data plots and statistical calculation.....	14
<b>11 Precision.....</b>	<b>16</b>
<b>12 Test report.....</b>	<b>17</b>
<b>Annex A (normative) Preparation and bonding of the load blocks or piano hinges.....</b>	<b>19</b>
<b>Annex B (informative) Recommendations for testing.....</b>	<b>20</b>
<b>Annex C (informative) Recommended test result sheet.....</b>	<b>23</b>
<b>Annex D (normative) DCB test with flat insert hinge.....</b>	<b>26</b>
<b>Bibliography.....</b>	<b>29</b>