

Australian/New Zealand Standard[®]

Plastics—Glass filament reinforced plastics (GRP)—Methods of test

Method 20: Method for the determination of the peel strength of the bond between laminate layers

1 SCOPE This Standard describes the test procedure to determine the peel strength of the bond between laminate layers.

2 PRINCIPLE Five test pieces are cut from the full thickness of laminate and a thin saw cut is made along the interface between the two layers of each test piece. The main laminate layer is clamped and a load applied to the secondary laminate just sufficient to peel the two laminate layers apart. The mean bond peel strength, expressed in newtons per millimetre width, is calculated from the load required for each test piece.

3 APPARATUS The following apparatus is required.

- (a) A vice or clamp to grip the main laminate horizontally as shown in Figure 1.
- (b) A testing machine or weights on a stirrup as shown in Figure 1 to apply the load to the secondary laminate.

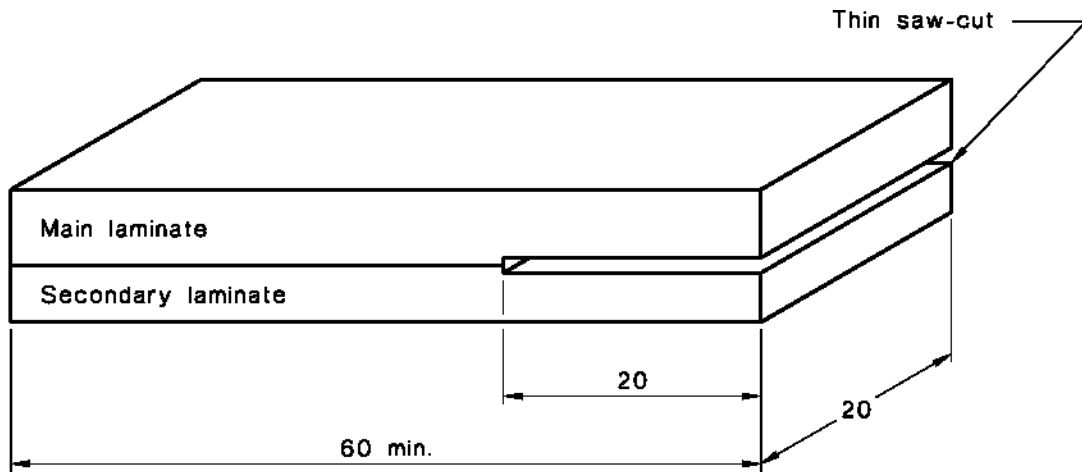
4 PREPARATION OF TEST SPECIMEN Five test pieces shall be prepared for testing. Each test piece shall be cut from the full thickness of laminate and shall be of the form and dimensions shown in Figure 1(a). The saw cut shall be as thin as practicable and made as accurately as possible along the interface between the two laminate layers whose peel strength is required (for example, between a main and an overlay laminate).

5 PROCEDURE The test procedure shall be as follows:

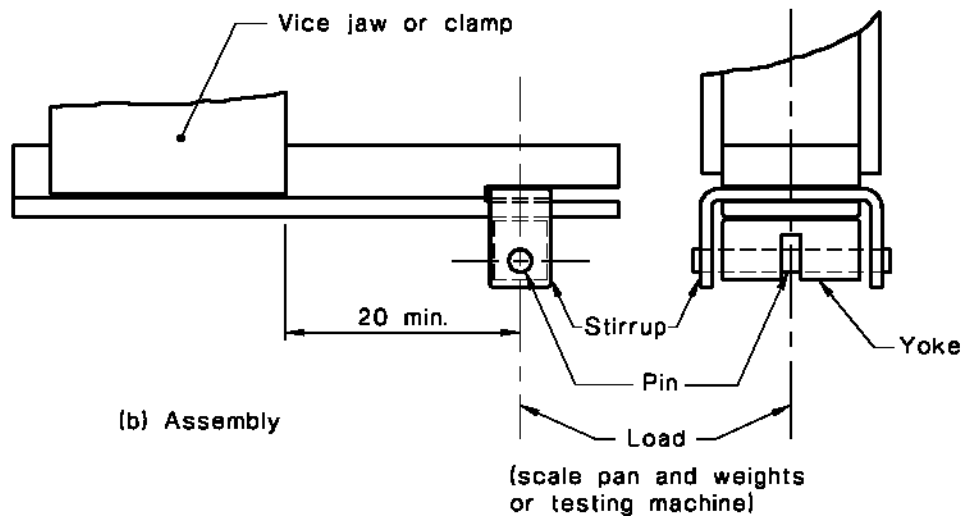
- (a) Condition the test pieces at $20 \pm 5^\circ\text{C}$ for not less than 3 h immediately prior to testing and carry out the tests at $20 \pm 5^\circ\text{C}$.
- (b) Grip the main laminate horizontally in the jaws of a vice or clamp and apply the load to the secondary laminate by means of weights or in a suitable testing machine until the load is just sufficient to peel the two laminate layers apart. During this operation, ensure that the plane of the load remains normal to the laminate interface (see Figure 1(b)).
- (c) The peel strength of the load shall be calculated from the total load at peel and the measured width of the test piece and expressed in newtons per millimetre width. The bond peel strength of the laminate under test shall be reported as the arithmetic mean of the bond peel strengths of the individual test pieces.

6 REPORT The following information shall be reported:

- (a) Full details of the laminate tested.
- (b) The bond peel strength of the laminate.
- (c) The individual test results.
- (d) Reference to this test method, i.e. AS/NZS 3572.20.



(a) Laminate/laminate specimen



(b) Assembly

DIMENSIONS IN MILLIMETRES

FIGURE 1 TEST FOR DETERMINATION OF PEEL STRENGTH OF BOND