

Australian/New Zealand Standard™

AS/NZS 4266.20

Reconstituted wood-based panels—Methods of test

Method 20: Resistance to surface abrasion (Taber abrasion test)

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM-005, Reconstituted Timber Panel Products.

This Standard is a revision of AS/NZS 4266.20:1996, with updated referenced document information.

METHOD

1 SCOPE

This Standard specifies a method for determining the resistance to surface abrasion of decorative surfaces by using the Taber abrader. It is applicable to all low pressure overlaid reconstituted wood-based panels.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS

4266 Reconstituted wood-based panels—Methods of test

4266.1 Method 1: Sampling, cutting, and conditioning of test pieces

4491 Timber—Glossary of terms in timber related Standards

ISO

48 Rubber, vulcanized or thermoplastic—Determination of hardness (hardness between 10 IRHD and 100 IRHD)

3 DEFINITIONS

For the purpose of this Standard, the definitions in AS/NZS 4491, AS/NZS 4266.1 and those below apply.

3.1 Initial wear point (IP)

The number of cycles when the first clearly recognizable wear through the print, pattern, plain colour coating or solid colour paper appears and the sub-layer becomes exposed in each of the four quadrants. The sub-layer for printed patterns is the background on which the pattern is printed; for plain colours it is the first sub-layer of different colour.

3.2 Final wear point (FP)

The number of cycles when the wear occurs for a printed pattern when about 95% of the pattern is removed in the abraded area, and for a plain colour when a sub-layer of a different colour is exposed over about 95% of the abraded area.

4 PRINCIPLE

Abrasion is achieved by rotating a test piece in contact with a pair of loaded cylindrical wheels covered with abrasive paper. The wheels are positioned so that their cylindrical faces are equidistant from the test piece's axis of rotation but not tangential to it. As the wheels are turned by the rotating test piece, they abrade an annular track on the test piece's surface. The number of revolutions required by the test piece to cause a defined degree of abrasion is used as a measure of resistance to surface abrasion.

5 APPARATUS

The following apparatus is required:

- (a) *Taber abrader*—complete with the following:
 - (i) S-34 zinc calibration plate or the equivalent.
 - (ii) S-42 sandpaper strips—with self-adhesive back.
 - (iii) Rubber wheels—two cylindrical rubber-covered wheels, 12 mm wide and 50 mm in diameter, which rotate freely about a common horizontal axis. The curved surface of the wheels, to a depth of 6 mm, shall be of rubber of 50 IRHD to 55 IRHD hardness, when tested in accordance with ISO 48. The inside faces of the wheels shall be 50 mm to 55 mm apart, and their common axis shall be 20 mm from the vertical axis of the test piece holder. The wheels shall be positioned symmetrically in a plane containing the axis of the test piece holder.
- (b) *Electric drill*—with 6 mm drill bit.
- (c) *Balance*—with an accuracy of 0.001 g.

6 TEST PIECES

The test pieces shall be 100 mm × 100 mm with a 6 mm hole drilled in the centre.

7 PROCEDURE

7.1 Calibration of abrasive paper

The procedure for the calibration of abrasive paper shall be as follows:

- (a) Place the sandpaper strips in an oven at $27.5 \pm 2.5^\circ\text{C}$ for 24 h to remove moisture. Store strips in a dry atmosphere until required for the test.
- (b) Clean the surface of the zinc plate with methylated spirits, record weight (to an accuracy of 0.001 g) and mount in the specimen holder of the Taber abrader.
- (c) Attach sandpaper strips to the rubber wheels and mount wheels to each abrader arm. Install the 500 g load to each abrader arm. Set the vacuum control to 90%.
- (d) Start the vacuum and revolve the turntable for 500 cycles. Weigh the zinc plate to an accuracy of 0.001 g.
- (e) Remount the zinc plate; apply new sandpaper strips to the rubber wheels and run for another 500 cycles. Reweigh the zinc plate.
- (f) Repeat step (e).