



Rotary Abrasion Test, Taber Type

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This standard is used to determine abrasion resistance of materials using a rotary platform tester.

1.2 Applicability. This test method can be applied to all the materials/parts, where the abrasion performance is required and needed to be tested for.

1.3 Remarks. Not applicable.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3221

2.3 Additional References.

Taber Industries, 455 Bryant Street N. Tonawanda, NY 14120, USA, <http://www.taberindustries.com>

3 Resources

3.1 Facilities. Not applicable.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Taber Rotary Type Abrasion Tester or equivalent.

3.2.2 Vacuum. Must have sufficient suction to remove particles during the test.

3.2.3 Weights supplied by abrasion tester manufacturer shall be added to the arm spindle, if necessary, to achieve the total required mass specified. If a mass is labeled 500 g, that is the total mass applied to the test specimen when the weight is added to the arm spindle, see Table 1.

Table 1: Possible Mass Combinations

Arm spindle	No added weight 250 g	= 250 g
Arm spindle	Plus weight labeled 500 g	= 500 g
Arm spindle	Plus weight labeled 1000 g	= 1000 g

Note: Each rotating platform has two (2) arm spindles. The weight specified in the material specification is the weight required on each of the two (2) arm spindles individually. If the material specification requires 1000 g, each arm spindle individually must be 1000 g (250 g arm spindle + 750 g weight). Each 750 g weight is actually labeled 1000 g. The weight is labeled to indicate the total weight after having been placed on the arm spindle.

3.2.4 Apparatus for conditioning to the appropriate requirements as described in GMW3221, unless otherwise specified in the relevant material specification.

3.2.5 Test Material.

3.2.5.1 One-hundred fifty (150) grit silicon carbide sandpaper supplied by Taber Industries as S-11, or equivalent.

3.2.5.2 Abrasion wheels, as supplied by Taber Industries, as required in the applicable material specification.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time.

Calendar time: 3 days

Test time: Dependent of the material specification, up to 60 minutes

Coordination time: 24 hours

3.5 Test Required Information. A test specimen is abraded using a dual, opposing, circular, rubbing action with a prescribed abrasive and a prescribed weight. The test specimen mounted on a platform, turns on a horizontal axis, against the sliding rotation of two (2) abrading wheels. The abraded area of the test specimen is evaluated visually.

3.6 Personnel/Skills. Personnel trained in accordance with the laboratory accreditation and Standard Operating Procedure requirements.

4 Procedure

4.1 Preparation.

4.1.1 A minimum of three (3) test specimens shall be cut to the dimensions specified in the material specification following sampling guidelines specified.

4.1.2 The diameter of the hole must be within ± 1 mm of the spindle diameter and shall be cut in the exact center of each test specimen. Do not fold the specimen to locate the exact center. A template may be used to overlay on the specimen to locate the center.

4.1.3 Follow mounting instructions in the material specification if it is not possible to use the standard mounting card.

4.1.4 Condition test specimens for a minimum of 24 h to the requirements of GMW3221, Code A.

4.2 Conditions.

4.2.1 Environmental Conditions. Not applicable.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions.

4.3.1 Install the specified abrasion wheels and additional weights, if necessary, as required in the equipment material specification.

4.3.2 The abrasion wheels shall be resurfaced, using sandpaper prior to each test. The sanding disk shall be used for 50 cycles maximum for the same wheel type. Resurface the wheel for a minimum of 25 cycles or until the original color of the wheel is restored. Never resurface a wheel with the sandpaper mounted over the test specimen.

4.3.3 Adjust the vacuum setting to the maximum power setting of 100 unless otherwise specified.

4.3.4 Clamp the sample in the holder so that the test specimen is smooth and wrinkle-free. Next install the flange, then the retaining nut. Lastly, install the retaining ring and tighten to be snug. Do not make the ring so snug that it causes the specimen to buckle.

4.3.5 Slowly lower the abrasion wheels gently on the test specimen.