Taber® Grit Feeder

Model 355

Model 1700 Abraser not included

Operating Instructions

TABER® INDUSTRIES

ICONS

This instruction manual contains several notes and warnings that should be observed carefully by the user. The following icons denote these notes and warnings:

Indicates a ***NOTE*** that warrants careful attention. These notes may detail a step in the procedure or point out a unique feature of the instrument.

Indicates a ***WARNING*** that warrants careful attention. These warnings inform the user of any dangers that may cause injury to the operator and/or damage to the instrument. It is imperative that you read and follow all warnings carefully.

The Waste Electrical and Electronic Equipment Directive (***WEEE Directive***) is the European Community Directive on waste electrical and electronic equipment which sets collection, recycling and recovery targets for all types of electrical goods.

Safety label – ***Shock hazard***

Safety label – ***Caution***

CE marking is a certification mark that indicates conformity with health, safety, and environmental protection standards for products sold within the European Economic Area (EEA).

SAFETY PRECAUTIONS

READ ALL SAFETY PRECAUTIONS BEFORE ATTEMPTING TO OPERATE.

Because of the design requirements, there are potential hazards that an operator should be aware of:

WARNING: *This equipment is designed for use with Taber Abraser Model 1700 or 1750. It is not suitable for other model abrasers.*

WARNING: *The rotating motion of the grit agitator creates an entanglement hazard. Do not place body parts or objects inside the hopper during operation as this may cause injury and/or damage the equipment.*

WARNING: *To minimize airborne particulate during testing, the Taber Abraser Vacuum must be used in conjunction with Model 355 Grit Feeder.*

Below are general precautions that one should take when operating the equipment:

- Before refilling the hopper, ensure the instrument has stopped and the power is off.
- The Grit Feeder hopper is equipped with a lid. Do not attempt to refill or add abrasive grit while the instrument is being operated.
- Do not attempt to operate without this in place.
- Fine particulate may become airborne during this test. To prevent inhalation, a paper mask may be worn.
- When ready to operate the instrument, ensure clothing and body parts are safely away from any hazard the instrument may present.
- Do not wear loose clothing or jewelry as they can become entangled in the moving parts.

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CLAIMS FOR SHORTAGES

We use extreme care during packaging to eliminate the possibility of error. If a shipping error is discovered:

1. Carefully examine the packing materials and ensure nothing was inadvertently overlooked when the shipment was unpacked.

2. Notify the company you purchased the product from and immediately report the shortage.

3. File any claim within 30 days from shipment.

CLAIMS FOR DAMAGES

Claims for loss or damage in transit should be made promptly and directly to the transportation company.

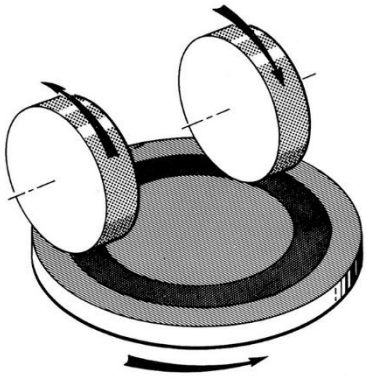
CONTENTS

Contents of the shipping container include the following:

- *Grit Feeder Apparatus – Model 355*
- *Grit Distributor Nozzle, Standard (assembled)*
- *Grit Hopper with Detachable Lid*
- *Grit Agitator*
- *Front Orifice Vacuum Nozzle*
- *S-39 Leather-Clad Wheels (1 pair)*
- *S-38 Standardization Plates (10 pcs.)*
- *S-41 Aluminum Oxide Abrasive Grit (22.5 kg)*
- *USB Interface Cable*
- *T-10 Torx Screwdriver*
- *Power Cord Kit 115/230 VAC*
- *Operating Instructions*

INTRODUCTION

The “Taber test” is a simple, effective means to determine a material’s resistance to abrasion. The characteristic rub-wear action of the Taber Abraser is produced by the contact of a test sample turning on a vertical axis, against the sliding rotation of two abrading wheels. The wheels are driven by the sample in opposite directions about a horizontal axis displaced tangentially from the axis of the sample. One abrading wheel rubs the specimen outward toward the periphery and the other, inward toward the center. The resulting abrasion marks form a pattern of crossed arcs over an area of approximately 30 cm^2 (4.65 $inch^2$).



The ***Model 355 Grit Feeder*** is used in conjunction with Taber Abraser Model 1700 or 1750 to evaluate three-body abrasion caused by the destructive action of fine, hard particles. Positioned over the Taber Abraser, the Grit Feeder is a freestanding instrument that deposits abrasive grit particles uniformly and continuously onto the specimen surface. As the specimen holder rotates, the loose grit passes under the right and left S-39 leather-clad wheels. The resulting rolling action of the particles serves as the abradant and contributes to the physical breakdown of the material.

The Model 355 may be mounted to either the right or left hand side of the Abraser and is controlled through the Taber Abraser via a USB interface cable. This ensures the specimen holder; abrasive grit particle flow and vacuum suction are actuated simultaneously.

The height of the grit distributor nozzle is adjustable using a thumbscrew and an optional short grit distributor nozzle is available when testing with an Abraser equipped with the Arm Height Extension Kit. An offset, front orifice vacuum nozzle removes grit particles and debris generated during testing. Model 355 offers a grit storage capacity of 2,650 grams.

INSTRUMENT SET-UP

1. Place the Grit Feeder on a flat, rigid surface.
2. Assemble the hopper to the Grit Feeder by screwing it into the threaded opening found on the top of the instrument.

3. Insert the M3 Torx screw into the agitator hub; and then place the grit agitator on the agitator shaft inside the hopper. Secure by tightening the M3 Torx screw with the T-10 Torx Screwdriver.

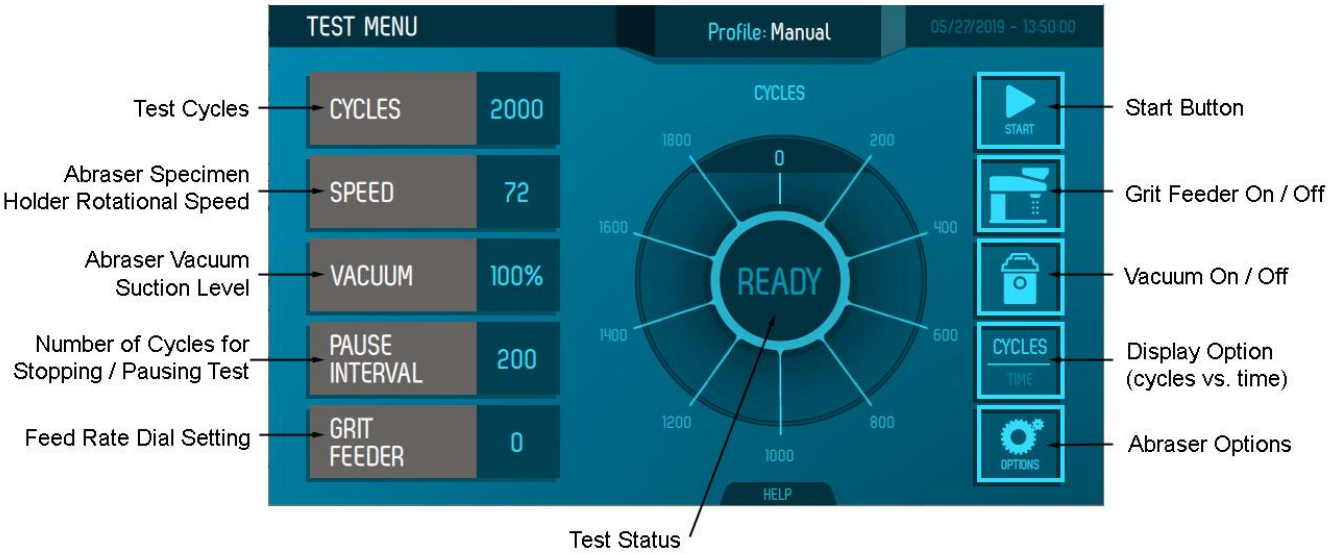
4. Lift the Taber vacuum pick-up nozzle into its upright rest position. Insert the offset, front orifice vacuum nozzle into the vacuum port opening.

5. Select the appropriate power cord, and connect it to the Model 355's power inlet. Two power cords (115V and 230V) are provided for your convenience, discard the power cord not used. Plug the power cord into a 115 or 230 volt, 60 or 50-cycle circuit.
6. Attach the USB interface cable to the rear of the Model 1700 or 1750 Taber Abraser, then to the Model 355 Grit Feeder.

WARNING: *The Model 355 Grit Feeder is designed to work only with the Model 1700 or 1750 Taber Abraser.*

NOTE: Prior to operating, ensure the vacuum hose is inserted into the rear of the Rotary Abraser Model 1700 or 1750.

NOTE: When testing with the Arm Height Extension Kit, an optional short distributor nozzle is available. Request Taber p/n 135697-1.



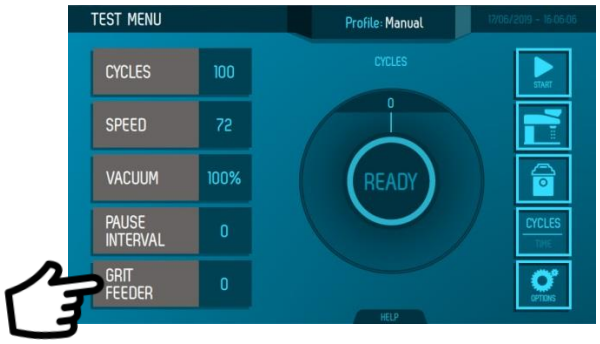
CALIBRATING FEED RATE

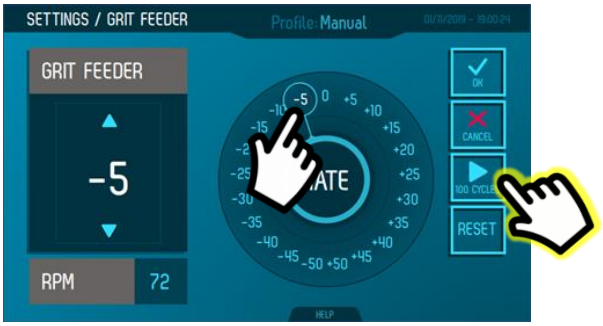
Prior to each series of tests, the Grit Feeder feed rate must be calibrated.

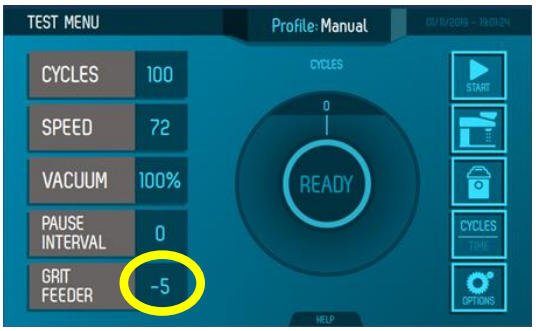
1. Prepare the S-41 aluminum oxide abrasive grit:
   a. Dry grit for one hour at approximately 82 °C (180 °F). Allow to cool in a temperature and humidity controlled room.
   b. Use a U.S. Standard Sieve No. 80 (sold separately) to remove any oversized or foreign particulate matter and break up any conglomerates.

2. Rotate the top of the Grit Feeder away from the abraser so a suitable container may be placed under the grit distributor nozzle.

3. Fill Grit Feeder hopper with dried and screened abrasive grit.
4. Program the Model 1700 (or 1750) Abraser for 100 cycles at a speed of 72 rpm. Alternatively, you can press the “100 CYCLES” button on the Settings / Grit Feeder screen. Before pressing “START” or “100 CYCLES”, raise the abraser arms and place a tared container under the grit distributor nozzle to collect the delivered grit.
5. Weigh the mass of the collected grit. The desired weight should be 35 ± 5g per 100 cycles.
6. Return collected grit to hopper.
7. If you do not achieve the desired weight, adjust the feed rate dial setting as shown below and repeat steps 4 – 6. If this does not resolve the issue, see Trouble Shooting on page 13.







8. Repeat steps 4 – 6 a minimum of three times, and record values. The feed rate is calibrated when all three readings are 35 ± 5 grams.

NOTE: The container the S-39 Leather-clad wheels are supplied has been found to be a suitable container.

NOTE: When weighing the amount of collected grit, be sure to tare or subtract the weight of the container.

NOTE: Test methods that specify a feed rate of 21 ± 3 g are per minute (not 100 cycles) and are based on an abraser turntable speed of 60 rpm.

NOTE: Feed rate may also be checked by pressing the button found on the SETTINGS / GRIT FEEDER screen. For 72 rpm speed, this button will be labeled “100 CYCLES”. For 60 rpm speed, this button will be labeled “60 SECOND”.

CALIBRATING ABRASION RATE

Prior to using a new lot of S-41 aluminum oxide abrasive grit, the Grit Feeder abrasion rate must be calibrated.

1. Prepare the Taber Abraser:
   a. Mount auxiliary weights marked 1000g on the Abraser arms.
   b. Install S-39 leather-clad wheels so the wheel marked “Left Hand” is mounted to the left abraser arm, and the “Right Hand” wheel is mounted to the right abraser arm. Position the wheels such that the markings are facing outward, toward the flange side of the wheel hub.
2. Remove the protective paper and condition the S-38 Standardization Plates. Wipe both sides of the standardization plate using a clean, soft cloth dampened with anti-static spray. Record initial weight to nearest 1 mg.

3. Mount the S-38 Standardization Plate to the Abraser specimen holder and lower the abraser arms.

   IMPORTANT: Prior to use, the S-39 leather clad wheels must be broken in. To do this, subject the wheels to a grit feeder test of 2,000 cycles on an S-38 Standardization Plate (results to be discarded).
4. Position the Grit Feeder so the grit distributor nozzle is located in front of the right wheel, over the area to be abraded.
5. Adjust the grit distributor nozzle so it is installed radially to the test specimen holder and the bottom opening is 10 ± 1 mm above the S-38 Standardization Plate. Secure in place with the adjustment screw.
6. Adjust the grit removal vacuum nozzle 3 ± 2 mm above the S-38 Standardization Plate. This is accomplished by turning the vacuum height adjust knob.
7. Using the Abraser touchscreen, enter 2,000 test cycles. Press “START” to commence testing.
8. After completion of test cycles, remove the S-38 Standardization Plate and wipe both sides of the standardization plate using a clean, soft cloth dampened with anti-static spray.
9. Weigh the S-38 Standardization Plate to nearest 1 mg and record final weight.
10. Calculate the difference between the initial mass of the S-38 Standardization Plate and the mass after 2,000 cycles.
11. Repeat steps 2 – 10 for two additional tests on an untested side of an S-38 Standardization Plate. The Grit Feeder abrasion rate will be acceptable if the average weight loss measurement is 127.5 ± 10 mg and no individual measurement is beyond 127 ± 18 mg.

NOTE: Both sides of the S-38 Standardization Plate may be tested, providing two results per plate.

NOTE: The Taber Abraser vacuum should be operated at maximum suction level (setting of 100).

NOTE: The offset, front orifice vacuum nozzle can be rotated to mount or remove test specimens.

NOTE: Test methods that reference Alodur ESK 240 abrasive grit may require a counterweight of 150 ± 3 g (see pg. 12) and average weight loss measurement of 145 ± 20 mg with no individual measurement beyond 145 ± 25 mg.

ADJUSTING FOR OPTIMAL PERFORMANCE

Grit Distributor / Vacuum Nozzle

The stream of grit should evenly cover the path of the wheels. After mounting the test specimen, loosen the grit distributor nozzle adjustment screw then raise or lower the grit distributor nozzle as necessary. Adjusting the grit distributor nozzle so the bottom opening is approximately 10 ± 1 mm above the face of the test piece has been found to be sufficient in most cases.

To ensure grit and other wear debris will be removed from the wear path, the front orifice vacuum nozzle must be oriented toward the test specimen and located above the track to be worn. Position the vacuum pick-up approximately 3 ± 2 mm above the surface of the test piece by turning the Taber Abraser precision vacuum nozzle height adjustment knob.

Wheel Loading

A wheel loading of 1000 g is utilized for most test procedures that reference the Grit Feeder. This reference is per abraser arm (not combined), and does not include the mass of the wheel itself.

As described in the Taber Abraser Operating Instructions, each abraser arm applies a load of 250 grams to the wheels with no auxiliary weights. In addition to the mass of the abrading arm itself, auxiliary weights are included with the Abraser to provide standard wheel loads of 500 grams or 1000 grams. For simplicity sake, each weight is marked with the total load that will be exerted on the wheel. The weights marked 500 g are actually 250 g. Likewise, the weights marked 1000 g are 750 g.

If your test method requires using a second pair of S-39 wheels mounted to the rear of the abraser arm to counterbalance the mass of the leather abrading wheel, Taber Industries offers a counterweight kit and weight that combine for a mass of 150 g.

NOTE: The marking of the auxiliary weights indicates the total of both the weight and the abrading arm.

NOTE: The counterweight arm (#135369) and counterweight (#135369) provide a mass of 150 g and should be used to offset the mass of the S-39 wheel. Placing an S-39 wheel on the counterweight arm provides a mass of 200 g which exceeds the intended counterweight by 50 g.

Abrading Wheels (S-39)

Supplied in pairs, Genuine Taber S-39 abrading wheels include a brass hub with a leather strip fitted to the perimeter. A close inspection of the hubs will show that one is marked “Left Hand”, while the other is “Right Hand”. The purpose of this marking is to ensure the mounting position of the wheels will be duplicated when they have been removed after use and later reinstalled. Position the wheels so the markings are facing toward the flange side of the wheel hub.

⚠ **WARNING:** *Do NOT break-in or resurface S-39 wheels using an abrasive sandpaper such as S-11 Refacing Discs. Significant damage can occur to the leather surface and influence test results. See Calibrating Abrasion Rate on page 7 for initial break-in instructions.*

NOTE: When not in use, wheels should be stored in their original container to prevent damage.

NOTE: S-39 abrading wheels must not be used if their overall diameter is less than 46 mm.

Abrasive Grit

Taber's S-41 abrasive grit is a proprietary grade of #240 aluminum oxide produced exclusively for Taber Industries and is not equivalent to standard #240 aluminum oxides. Using a different abrasive grit may not produce equivalent results. Prior to use, dry and screen the S-41 abrasive grit as stated in the Calibrating Feed Rate instructions (see pg. 6).

Alodur ESK 240 manufactured by Treibacher Schleifmittel is an acceptable abrading material referenced in European test methods such as EN 14354[1] and ISO 24338[2]. This material does not require sieving before use.

NOTE: When not in use, abrasive grit should be stored in a standard laboratory atmosphere of 23 ± 2°C (73.4 ± 3.6 °F) with 50 ± 5% relative humidity.

NOTE: Abrading material should only be used once and then discarded.

Feed Rate

The Taber Abraser Model 1700 / 1750 operator interface includes the ability to adjust the abrasive grit feed rate. To determine the proper setting, see Calibrating Feed Rate instructions.

SPECIMEN PREPARATION

Use of these guidelines should assist you in developing a test procedure that will yield reproducible test results, accurate within the variations of quality inherent in the material itself.

- The suggested number of test specimens from each laboratory sampling unit is a minimum of three (3).
- All specimens should be labeled to maintain specimen identity.

Specimen Size

Rigid specimens are often cut from a larger sheet utilizing an appropriate cutting tool. Specimens should be approximately 100 mm square with surfaces plane and parallel.

The standard material thickness that can be evaluated with the Taber Abraser is 6.5 mm. To secure the test specimen to the standard specimen holder (SH-125), a 6.5 mm diameter hole must be drilled in the center of the specimen.

NOTE: To test specimen thickness greater than 6.5 mm but less than 12.5 mm, use the S-21 Extension Nut (requires a 9.5 mm center hole). The Arm Height Extension modification will permit testing up to 40 mm in thickness (requires a 13 mm center hole).

Specimen Cleaning

The specimen surface must be free from dirt, fingerprints or other contaminants. If necessary, use an appropriate cleaning method for the material being tested.

Specimen Conditioning

Prior to testing, it is recommended that specimens be conditioned for at least 24 hours in a standard laboratory atmosphere of 23 ± 2 °C (73.4 ± 3.6 °F) with 50 ± 5% relative humidity. Tests should be conducted in the same test atmosphere.

Specimen Mounting

Rigid specimens are generally mounted to the Taber Abraser using the standard specimen holder (SH-125) without the Clamp Ring (SH-101). For square specimens that do not have a center-mounting hole, the optional Drive Pin Specimen Holder (SH-19) is available. To help contain loose abrasive particles during testing, the optional Rimmed Specimen Holder (SH-75) may be used.

[1] EN 14354 Wood-based panels – Wood veneer floor covering; Annex D – Determination of the wear resistance using the falling sand method

[2] ISO 24338 – Laminate floor coverings – Determination of abrasion resistance (Method B)

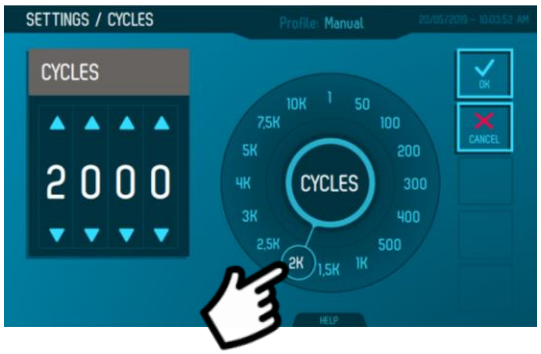
TEST PROCEDURE

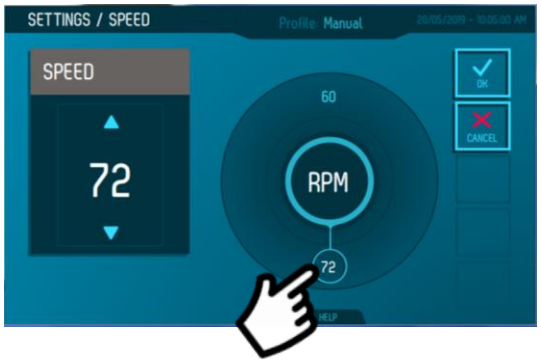
If calibration of the Grit Feeder feed rate has just been completed, proceed to step 3. Otherwise, refer to Calibrating Feed Rate instructions for additional details.

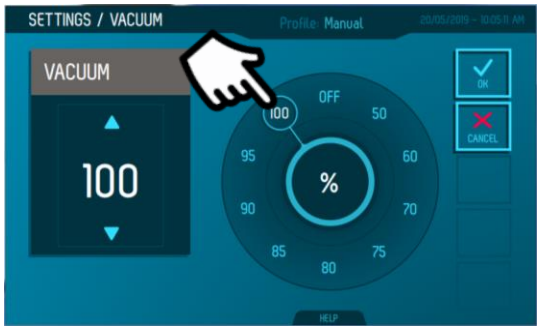
1. Prior to use, dry S-41 abrasive grit for 1 hour at approximately 82 °C (180 °F). Allow to cool in a temperature and humidity controlled room then screen grit through U.S. Standard Sieve No. 80.
2. Fill hopper with dried and screened abrasive grit.
3. Prepare and condition specimens, then record initial values. For weight loss, weigh specimen to nearest 0.1 mg. For visual comparisons, examine test surface and note characteristics.
4. Secure specimen to Abraser specimen holder.
5. Mount S-39 leather-clad wheels and auxiliary weights on Abraser. If no wheel loading is specified, a load of 1000g per abraser arm is suggested.

   IMPORTANT: Prior to use, the S-39 leather clad wheels must be broken in. To do this, subject the wheels to an initial grit feeder test of 2,000 cycles on an S-38 Standardization Plate.
6. Adjust the grit distributor nozzle so the bottom opening is 10 ± 1 mm above the specimen surface.
7. Adjust the position of the offset, front orifice vacuum nozzle 3 ± 2 mm above the specimen surface.

8. Using the Abraser touchscreen, enter the appropriate test parameter then press the “OK” button.







9. Press START button on Abraser keypad to commence testing. To interrupt a test, press the PAUSE button. To stop or cancel a test, press the STOP button.

10. After completion of the test cycles, remove and clean test specimen. The offset, front orifice vacuum nozzle can be rotated to remove or inspect test specimens.

11. Evaluate and record intermediate or final values.
12. At the conclusion of the test, remove any remaining loose grit particles from the S-39 wheels using a soft bristle brush.

⚠ **WARNING:** *Abrading materials used with the Taber Abraser and Grit Feeder may be harmful if ingested. Ensure the vacuum unit is used at all times when the Abraser and Grit Feeder are in operation.*

NOTE: During usage, the leather will break down causing the diameter of the S-39 leather-clad wheel to change. Wheels must be replaced when the diameter reaches 46 mm.

NOTE: Tests that require a visual inspection of wear-through to the substrate, or require periodic weight measurements, should be stopped at a predetermined number of cycles. It is suggested to inspect the test specimen every 200 cycles and when the test nears its end, inspect every 100 cycles.

NOTE: To avoid running out of abrasive grit during a test, periodically monitor the grit level in the hopper.

CALCULATION OF RESULTS

The following are commonly used methods for reporting Grit Feeder test results. For comparable and reproducible tests, it is recommended that all testing be performed under conditions covered by an established test procedure.

Weight Loss Method – The weight loss test method is a quantifiable method that records the weight loss of the test specimen due to abrasion. This method is recommended when the results are to be compared with those of similar materials having nearly the same specific gravity.

Weigh the test specimen before and after testing to obtain the initial and final weight values. The difference between these two values, F_{total}, will be the weight loss.

$$F_{total} = A - B$$

Where, A = weight of test specimen before abrasion, mg
B = weight of test specimen after abrasion, mg

Use the following formula to calculate average mass loss, F_m, in milligrams (mg) per 100 cycles:

$$F_m = \frac{F_{total}}{n} \times 100$$

Where, n = total number of revolutions

When performing the weight loss method, loose particulate may adhere to specimens during testing. It is critical that test specimens are cleaned prior to weighing.

Taber Wear Index may also be used to present weight loss data. This measurement represents the loss in weight in milligrams per thousand cycles of abrasion. The lower the wear index, the better the abrasion resistance quality of the material.

$$Taber Wear\ Index = \frac{F_{total} \times 1000\ cycles}{n}$$

When comparing the wear resistance of materials that have different specific gravities, a correction for the specific gravity of each material shall be applied to the weight loss to give a true measure of the comparative wear resistance. Calculate the weight loss or Taber wear index as shown above, then divide the result by the material's specific gravity (see Volume Loss Method).

Visual Change – For visual changes, the test specimen is normally subjected to abrasion for a specified number of cycles or until wear through to the substrate occurs. Following testing, inspect the specimen and note changes of appearance.

To evaluate the wear of the abraded area, a transparent template with each quadrant divided into four sectors of 22.5° may be used. Place the transparent template on the test piece and examine the wear through. According to test method EN 14354, wear through has occurred when there is continuous wear through in 12 sectors out of 16 and; continuous wear through in 1 sector per quadrant. If there is not sufficient contrast between the substrate and coating, a contrast marking solution may be used (e.g. water based solution of 1% Methylene or Alkali blue).

If the product has an embossed pattern, estimate the proportion of the embossed pattern that is abraded away by comparison against the original. The result is reported as the number of rotations to wear through, rounded to the previous hundred. When reporting a batch of tests, the result is the average of cycles to wear through for each test specimen, rounded to the previous hundred.

Volume Loss Method – When comparing the wear resistance of materials having different specific gravities, a correction for the specific gravity of each material should be applied to the weight loss to give a true measure of the comparative wear resistance. The use of this correction factor gives a wear index related to the loss in volume of the material to which it is applied. Determine the specific gravity of the material to be tested in accordance with standard practice.

$$VL, cm^3 = \frac{W_1 - W_2}{S}$$

Where, VL = volume loss

W_1 = weight of test specimen before abrasion, g

W_2 = weight of test specimen after abrasion, g

S = density of the material being abraded, g/cm^3

$$VL, mm^3 \ / \ 100 \ cycles = \frac{VL, cm^3 \ x \ 1000}{total \ cycles} \ x \ 100$$

Depth of Wear Method (Thickness) – Certain test requirements may call for measuring the depth of wear. Using a thickness gage or micrometer, measure the specimen thickness on four points of an unabraded sample, 90° apart and oriented 38 mm from the center hole [this will be within the wear path]. After abrading the sample, repeat the measurements at the same locations and record the difference. To compensate for depth differences around the specimen wear path, an average should be computed from the four readings. To assist with measuring at the same locations, the back of the sample can be marked accordingly.

Change in thickness can also be measured using an Optical Micrometer or similar instrument. Place the measuring device so that it spans both the abraded and unabraded portion of the specimen. Calculate the amount of wear by measuring the difference between the abraded and unabraded areas in four equadistant points around the specimen, and average the results.

Alternatively, the average loss in thickness can be calculated by dividing the loss in volume by the abraded area of the specimen.

INFLUENCES ON RESULTS

The measurement of abrasion resistance is a complex phenomenon and may be influenced by a number of factors. If there are significant differences between reported test results for two laboratories (or more), it is often attributed to procedural errors or an instrument that is out of calibration. For comparable and reproducible tests, it is recommended that all testing be performed under conditions covered by an established test procedure.

Common sources of variation include material influences, conditions of the tests (e.g. temperature and humidity, conditioning of specimens), and test methodology (e.g. vacuum nozzle height, pressure between the abrading wheel and specimen).

Physical properties of the material, such as hardness or resiliency, can influence resistance to abrasion. In addition, material characteristics such as type or amount of added substances are known to be potential sources of variation. When testing organic materials or coatings, ensure materials are fully cured according to the manufacturers' instructions. Many coatings show low abrasion resistance the first few days but progressively improve during the following 30 days as the coating cures. Other items to consider include surface roughness (e.g. type, depth and amount of embossing); specimen flatness; and parallelism of the opposing sides.

The type of abradant used plays an important role with Grit Feeder tests. Prior to use, it is essential to sieve the grit to remove any conglomerates then dry it. When finished testing, empty the hopper of unused grit and store as recommended.

If a thorough investigation does not uncover the cause for the difference, comparative tests should be performed to determine if there is a statistical bias between the laboratories. The test samples used must be as homogeneous as possible, drawn from the material from which the disparate test results were obtained, and randomly assigned in equal numbers to each laboratory for testing. The test results from the laboratories should be compared using a statistical test for unpaired data, at a probability level chosen prior to the testing series. If bias is found, either its cause must be found and corrected, or future test results must be adjusted in consideration of the known bias.

TROUBLE SHOOTING

If the desired weight loss is not obtained after following the calibrating instructions, other issues may need to be evaluated.

- ***Inconsistent grit flow*** – The grit distributor includes openings that expel the abrasive grit. These may become clogged by oversized grit or other contaminates and need to be cleaned. To clean, use a container to empty the hopper of grit and use the Taber vacuum to remove any remaining grit or debris from the grit distributor.
- ***Limited grit flow*** – If the grit flow slows or stops ensure there is grit in the hopper. If there is, but the problem persists, it is possible the grit has settled or absorbed moisture. This condition may cause grit to stay on the sides of the hopper while the agitator loosens grit from the center of the hopper. Empty the hopper, dry and screen the grit, and then refill the hopper.
- ***Grit feed rate*** – If the upper / lower grit feed rate adjustments are not sufficient to obtain the desired grit feed rate, the instrument may require calibration.
- ***Path of grit*** – The grit distributor nozzle must be positioned in front of the right wheel so the grit falls on the area that coincides with the wear path generated by the S-39 wheels.
- ***Humidity control*** – Moisture has been found to impact the rate of grit flow. Dry all grit prior to use.
- ***S-39 Leather-Clad Wheels*** – Wheels that were not properly broken in or manufactured with Genuine Taber S-39 leather will impact the abrasion rate. Wheels must be replaced when their overall diameter is less than 46 mm.
- ***Abraser Calibration*** – The Taber Abraser is a precision instrument that must be maintained and calibrated. Bearings that are worn or become contaminated with abrasive grit may prevent the S-39 wheels from rotating freely, which can impact the abrasion rate.
- ***Test Material*** – Materials that are affected by static should be wiped with a clean, soft cloth dampened with anti-static spray.

If no apparent cause can be determined, the grit agitator may be worn and require replacement. Alternatively, either the Taber Abraser or Grit Feeder may be in need of calibration.

MAINTENANCE

The Taber Grit Feeder Model 355 is a precision instrument and if used and maintained properly, should give you many years of trouble-free service.

General Care

- Empty the hopper of unused grit during periods of instrument inactivity. It is good practice to regularly empty the hopper even when frequent tests are performed.
- Due to the abrasive nature of the grit particulate that flows through the instrument, periodically check the grit distributor nozzle and front orifice vacuum nozzle for wear damage.
- Brush or vacuum all loose particulate and debris off the instrument and surrounding work area.
- The bearings and other moving parts of the Grit Feeder DO NOT require lubrication. Introducing any type of lubricant may contaminate the abrasive grit.

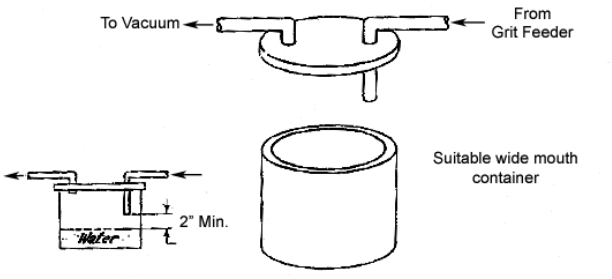
Emptying the Hopper

To empty the hopper of unused grit, scoop out the majority of the grit using a suitable container. Use the Taber vacuum to remove any remaining grit or operator the instrument with a container placed under the distributor nozzle to collect the grit.

⚠ **WARNING:** *Do NOT tilt the grit feeder to empty the hopper. This may result in grit entering the drive system.*

Vacuum Water Trap

The nature of this test subjects the vacuum unit to a great deal of abrasive grit. Given the destructive power of the grit, the vacuum may become damaged. As a means to protect the vacuum motor and to reduce the need to empty the vacuum bag frequently, a water trap may be constructed.



A tight seal is not required between the container and the lid. Also, the inlet pipe to the water trap should be far enough away from the water surface that undue turbulence is avoided and water does not enter the exhaust line.

Particle Separator

Similar to the water trap, a commercially available system such as Oneida Air Systems - Dust Deputy® can help extend the life of the vacuum and filters. When installed, the Dust Deputy separates the abrasive grit particles and debris generated while testing before it reaches the vacuum.

Replacing the Grit Agitator

An agitator replacement kit is available if the agitator becomes worn.

Empty the hopper of abrasive grit, power off the Grit Feeder and unplug from power supply. Remove the hopper lid and use a vacuum or brush to remove any loose grit on top of the grit agitator M3 Torx screw. Hold the grit agitator securely and remove the M3 Torx screw using the T-10 Torx screwdriver. Discard the used grit agitator and M3 Torx screw. Place a new M3 Torx screw into the agitator hub and position it onto the top of the agitator shaft. Tighten the M3 Torx screw with moderate torque. Refill the hopper with abrasive grit and replace hopper lid.

Cleaning the Grit Distributor

If the grit distributor becomes clogged, empty the hopper of any unused grit. Use a vacuum to remove any grit or debris from the grit distributor.

CALIBRATION / FACTORY SERVICE

Should your Model 355 Grit Feeder require repair or adjustment, carefully pack the instrument in the original packaging or in a rugged container with adequate cushioning material. After obtaining a return authorization number from the factory, the unit should be shipped, transportation charges prepaid, to Taber Industries.

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www.OrderTaber.com

Replacement Parts / Accessories

Part#	Description
121257	S-38 Standardization Plates, 10 pcs.
125529	S-39 Leather Wheel Set
121086	S-41 Aluminum Oxide Grit, 50 lb.
134854	Alodur ESK 240 Grit per EN 14354, 50 lb.
125629	U.S. Standard #80 Sieve
136041	Grit Distributor Tube, standard (ref. 2.87”)
136042	Grit Distributor Tube, short (ref. 1.80”)
135935	Front Orifice Vacuum Nozzle, Model 355
135904	Grit Agitator Replacement Kit
135369	Counterweight Arm Kit for Model 1700/1750 (2 pcs.) provides 50g counterweight; includes counterweight to achieve 125g load
135928	Counterweight Set to achieve 150g for Model 1700/1750 (2 pcs.), requires Counterweight Arm Kit
136012	USB Interface Cable, A-Male to B-Male, 3 Ft.
135891	T-10 Torx Screwdriver