Wet Track Abrasion Test – 60ºC Specification

1. Purpose

1.1. The purpose of this document is to outline the modifications to the process and procedure for making and testing 60ºC Specification Wet Track Abrasion samples (60C-WTAT) based upon ISSA TB 100 Guideline and ASTM E1911 Method.

2. Scope

2.1. The scope of this document covers the modifications for Mastic Surface Seal Treatment from the referenced guidelines or standards.

3. Responsibility

3.1.1. *This method may involve may involve hazardous materials, operations and equipment. This method does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user of this method to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

4. Equipment

4.1. Equipment needed to carry out this procedure:

4.1.1. Equipment as needed as outlined in ISSA TB-100 steps 5.1, 5.2, 5.4, 5.5 roofing felt disk portion and 5.7 through 5.10.

4.1.2. Parker® Brand hose Parker Series 7092 GST® II ¾ ID (19.0mm) 300 PSI Max WP Made in USA or exact equivalent replacement.

4.1.3. Drawdown plate (WTAT Prep Glass) capable of holding drawdown felt in place for casting.

4.1.4. Casting knife 12 inches wide capable of making smooth, even draw of liquid sealer sample.

4.1.5. Roofing felt that is 30 – 45 pound weight.

4.1.6. Balance capable of weighing 6200 grams with 0.01 gram accuracy for 0 – 1220 grams.

4.1.7. Liquid sealer sample needing to be tested.

4.1.8. Water squirt bottle.

4.1.9. Stirring mechanism for sealer sample capable of homogenous mixing of material.

4.1.10. Soft, absorbent paper or cloth towels.

5. PPE

5.1. Safety glasses with side shields.

5.2. Long sleeve shirt or lab coat.

5.3. Closed toe shoes.

5.4. Nitrile safety gloves as needed for material handling.

6. Reference Documents

6.1. ISSA TB-100 method guideline.

6.2. ASTM E1911 standard test method.
6.3. Each Safety Data Sheet and Technical Data Sheet for safe and operational procedures.

7. Definitions

7.1. WTAT Prep Glass - Hold down glass with clipboard clip at top edge to hold wet track substrate in place while drawing sample. The plate is typically made from ½" thick glass and measures 14" X 16" with rubber feet to prevent slipping. The plate was ordered from Gardco.com with part number DP-898116.
7.2. Drawdown Casting Knife - ByK-Gardner type (or equivalent) adjustable or non-adjustable casting knife for creating a cast film of liquid material needing tested. Film applicator with dimensions = 12" film path and 13 ½" overall width capable of delivering a 50 mils depth (0.050") wet film application to the test tar paper.

8. Procedure

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8.1. FOLLOW ALL TB100 STEPS EXCEPT AS NOTED HERE IN THIS PROCEDURE

8.2. SPECIMEN SUBSTRATE PREPARATION

8.2.1. Cut a piece of 30 - 45 pound roofing felt to measure 29 cm X 35 cm.

8.2.1.1. Flatten all roofing felt substrate cuts in 50ºC oven overnight.

8.3. SPECIMEN PREPARATION

8.3.1. Place roofing felt on a support base that can hold the felt in a flat position and will not allow the felt to move. The WTAT prep glass works well.

8.3.1.1. Ensure the roofing felt has a flat specimen surface of uniform texture to achieve necessary results.

8.3.1.2. Place the long side of the felt at the top of the support base under the hold down mechanism.

8.3.1.3. Make sure the near edge of the felt is at or just over the near edge of the table or bench it rests on to allow a slight overhang of the felt to allow excess cast sealer to fall off the sample felt when drawn.

8.3.1.3.1. The WTAT prep glass works well as the support base with holddown.

8.3.1.3.1.1. WTAT Prep Glass is a thick glass plate that is 30 cm X 30 cm X 1.27 cm with a clipboard clip at the top to hold sample drawdown felt in place.

8.3.2. Place casting knife that is wide enough to cover the long edge of the WTAT drawdown felt on the top edge of the drawdown felt just below the clip.

8.3.2.1. Ensure the casting knife has been set to 50 mils depth (0.050 inches = 0.0127 cm) or is permanently machined at 50 mils depth wet film application.

8.3.2.2. Place casting knife on drawdown felt with knife edge facing down and edge stops facing toward you. If using the ®Bird Film Applicator make sure the words on top of the knife are right side up and readable.

8.3.2.2.1. Knife with bevel edge must have bevel facing you to draw sample properly.

8.3.3. Place 50 - 100 grams of sealer on the felt just in front of the knife edge and spread with a stir rod to ensure an even amount of material in front of the knife in between the knife edge stops.

8.3.3.1. Stir rod spread is from side to side to even out the material depth in front of the knife edge to ensure an even depth casting.

8.3.3.2. Place enough material to allow the sample to make a smooth, even casting over the entire drawdown area the knife will pass. The specimen should be essentially completely covered with sealer when the drawdown is complete to the finished drawdown edge.

8.3.4. Gently pull the casting knife smoothly and evenly at moderate speed toward you to create a casting of sealer material that is even in depth and smooth all the way across.

8.3.4.1. Allow any excess material to fall off the near edge of the felt into a waste container or receiving vessel.

8.3.5. Clean the casting knife ensuring not to get the micrometer dials wet.

8.3.5.1. Spray the knife with a squirt bottle of clean tap or distilled water to clean the dirty knife area and wipe dry with a soft, absorbent paper or cloth towel/s.

8.4. SPECIMEN CURING

8.4.1. Immediately after casting, place the cast sample in 60ºC forced air oven and allow to cure for 26 hours +/- 1 hour.

8.4.1.1. Place cast samples in oven on far left or right side of each oven shelf alternating sides as samples are placed on each subsequent shelf.

8.4.1.2. Only one cast sample per shelf.

8.4.1.3. Load oven shelves from bottom shelf to top shelf. Bottom shelf first.

8.4.2. Record weight of cured cast sample as cured casting total weight.

8.4.2.1. Promptly remove cast sample from oven and let cool for 5 minutes +/- 1 minute.

8.5. SPECIMEN WATER SOAKING

8.5.1. Following section TB100 7.2 fully submerge cured cast sample in 25ºC tap water bath for 3 day soak +/- 4 hours from start time.

8.5.2. Promptly remove cured cast sample from water bath and place in WTAT abrasion test pan.

8.5.2.1. Press soaked felt sample flat all the way to pan edges ensuring the felt is pressed well into the pan bottom around all the edges.

8.5.2.2. Completely cover cured cast sample with ¼" water of 25ºC water as in TB100 section 7.4.

8.6. SPECIMEN ABRASION AND DRYING

8.6.1. Follow International Slurry Surfacing Association (ISSA) guidelines TB100 steps 5.9 through 5.10 and 7.3 through 7.7 for abrasion testing of soaked cured cast sample and post abrasion drying.

8.6.2. Record weight of abraded cast sample as cured abraded weight.

8.6.2.1. Promptly remove abraded cast sample from oven and let cool for 5 minutes +/- 1 minute.

8.6.2.2. Lightly brush sample with soft paint brush to remove any added debris from the soak and abrasion processes.

8.7. SPECIMEN EVALUATION, CALCULATIONS AND REPORTING

8.7.1. Determine the mean diameter in cm of the abrasion pattern on a series of test sample and convert to a mean abrasion wear area in cm^2.

8.7.1.1. The InVia Tulsa Lab average abrasion area initially tested in May 2012 was 259.8 cm^2 using the red Hobart C-100 serial number 1869133 mixer.

8.7.2. Use the weights and abrasion wear area to calculate the abrasion loss and report in g/cm^2.

8.7.2.1. Current abrasion area used in calculations is 259.8 cm^2.

8.7.3. Report abrasion loss as g/m^2 loss.

8.7.3.1. Abrasion loss calculation is ((cured casting total weight - cured abraded weight) / abrasion wear area cm^2)*10000 = g/m^2 WTAT loss.

9. History

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Date of Change	Description of Change
30 October 2014	Updated wet track curing process for cure time in oven and the amount of time allowed for specimen cooling after removal from oven.
31 October 2014	Adjusted each section for major procedure steps and added notice for only one specimen per shelf in oven when curing.
24 November 2014	Changed name of test to 60C Specification Wet Track Abrasion Test and added instructions for placing samples in oven starting on the bottom shelf.
31 August 2015	Updated method for clarification of test hose needed for proper testing.

10. Review and Re-approval

Date of Review	Reviewer	Comments