

9710303 TRAFFIC MARKING MATERIALS
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comments: (12-2-14)
Comments for 971-3.3:

→ → **971-3.3.2 Abrasion Resistance:** Test four samples ~~per LOT~~ using a Taber Abrader. The paint shall be applied to specimen plates using a drawdown blade having a clearance of 26 mils. Air dry each sample for 30 minutes and bake at 220°F for 18 hours. Clean with a soft brush and weigh each sample. Abrade samples for 1,000 cycles with *a combined load of 500g labeled (arm plus auxiliary weight) weights on each arm* and CS-10 wheels. Clean the samples with a soft brush and weigh again. The average weight loss for the four plates shall not exceed 50mg per plate.¶
→ → **971-3.3.3 Retroreflectivity:** The white and yellow pavement markings shall

1. 2nd Sentence: 26 mils may not be appropriate for all coatings. May be too thick to allow some water-based coatings to dry properly. If allowing to bake to cure, samples just need to be thick enough not to abrade through.

Response:

2. 3rd Sentence: 30 min. May not be enough for thicker / high build WB paints, because; if not dry, they will bubble when baked. Suggest adding highlighted text: “Air dry each sample for **a minimum of 30 minutes.....**”.

Response:

Paul Gentry
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Comments: (12-8-14)

This test method is referenced in the Specification 710 Standard Waterborne Paint and Specification 709 Two Component Reactive Materials. It will be referenced in the “soon to be” implemented Specification 710 Durable High Build Paint. There are several issues with the adoption of ASTM 4060-10:

1 By the reference of 26 mils, should this number reference be stated as “wet mils”?

Response:

2. There is considerable confusion concerning the statement “Air dry each sample for 30 minutes and bake at 220 degrees F. for 18 hours”. If you read Section 10.2 Conditioning under D4060-10, it states “Unless otherwise agreed upon between the interested parties, condition the coated panel for at least 24 hours at 23 +/- 2 degrees C and 50 +/- 5% RH.” Why are we preparing our samples by air drying each sample for 30 minutes and then baking it at 220 degrees F for 18 hours? Where did that set-up come from in reference? This time of drying will be different for

both Standard WB Paint and Two Reactive, much less the anticipated implementation of High Build Paint. The High Build will require several days dry time to drive off moisture.

Response:

3 At what speed is this test being run at? Typical speed mentioned by manufacturers to me is 6, although it can be adjusted slower or faster. Lower speed means less friction, higher speed means more friction. Section 6.1.2 only states that the motor must be capable of rotating the turntable platform at a speed of either 72 +/-2 r/min for 110/60 Hz or 60 +/-2 r/min for 230/50 Hz. Each instrument has variable speeds with which to run it at. There is no mention of this either in the standard or specification.

Response:

4. With the reduction of .5 lbs. per gallon TIO2 in the waterborne paint to 1.0 lbs. per gallon TIO2, no consideration was given as to how this might affect the loss of material using this test. The present verbiage in Specification 971-3.3.2 states that “The average weight loss for the four plates shall not exceed 50 mg. per plate”. Looking at the precision of this test (ASTM 4060-10, Table 1 Reproducibility Limit), the very best comparison to a Nylon Powder Coating has a weight loss of 8.9 mg. The point is that that this method is not precise and the weight loss number of 50 mg. needs to be looked at closer and evaluated.

Response:

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Comments: (12-10-14)

In 971-3.3.2 Abrasion Resistance, the Taber Abrader test (Taber Abraser) requires the testing using 500 grams of weights attached to the machine. Since the units of measurement followed in the specification book are in USCS, it is recommended to also show the conversion to pounds. Ex. Abrade samples for 1,000 cycles with a combined load of 500 grams –metric units(1 gm = 2.205x 10 -3 lbs)labeled (arm plus auxiliary weight)weights on each arm and CS-10 wheels. Comments from Chad Rucks D4 Treasure Coast 772-465-7396 o Sections 971-3.3 (For Standard Waterborne Fast Dry Traffic Paint) & 971-4.3 (For Fast Dry Solvent Traffic Paint) are both being deleted and substituted. It appears that both sections are being replaced with the very similar verbiage or often the same information (Density information in the table seems to be the only difference). It seems redundant to have the same information presented twice. Perhaps there is a way to only state the information once and combine these sections.

Response:

David Villani
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Comments: (12-10-14)

For both 971-3 and 971-4 we suggest the following: Abrasion Resistance: Test four samples per LOT using a Taber Abrader. The paint shall be applied to specimen plates using a drawdown blade that will deposit 15 wet mils as tested using a wet film gauge. Specimen plates may be either metal, Lenta sealed charts and/or scrub charts. Air dry each sample for 7 days. Clean with a soft brush and weigh each sample. Abrade samples for 1,000 cycles with a combined load of 500 g labeled (arm plus auxiliary weight) weights on each arm and CS-10 wheels. Clean the samples with a soft brush and weigh again. The average weight loss for the four plates shall not exceed 65 mg per plate. Current spec says use a 26 mil gap. Since viscosity and thixotropic nature of paints vary from supplier and batch to batch, a 26 gap will give varying dry thickness. Drawing down to the same wet mils will give more consistent dry mils The current drying regime for Taber uses air and oven. Forced drying interferes with the normal air dry coalescent properties of the paint and that will change the results.

Response:

D5 Construction

Comments: (12-11-14)

Sub-Section 971-3.3 to 971-8.3.2: - If we are going to eliminate the LOT system, once four samples are tested, and the weighted average meet the requirement for ASTM D4060. Will this be the acceptance for the entire operation that will be applied to that project?

Response:
