

9010102, Coarse Aggregate
Response to Comments from Industry (and Internal) Review

David O'Hagan

Comment:

Who set the size of the "piece at 2"x1/2"? What about thickness? Seems that a better approach would be a very approximate VOLUME of the "piece."

Response:

John Shoucair set the dimensions based on limiting a root length to less than the rebar cover requirement. The half inch width or thickness is based on the worst pieces we observed.

Cliff Kirkmyer

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Comments:

901-1.2 Deleterious Substances:

To change Organic Matter from 0.03% to Plant root and wood and wood matter (visual inspection in AASHTO T27) 0.005%.

It is believed this proposed revision is in response to an incident with one producer from one source. It is also understood the structure of concern was a bridge deck and the specific area of concern was the roots in the coarse aggregate allowing the movement of water to the reinforcement steel. Why tighten an existing specification which has performed well with the exception of this one project? Review of other state specifications reveals we already have one of the strictest concerning organic matter (wood). Why not restrict the use of this one source and/or application?

What supporting documentation is there to support setting the specification to 0.005% and 2in long by 1/2in wide?

Currently one sample failure would be a signal of trouble. The Construction Aggregate Manual will have to be revised to allow a failure within a sub lot.

A limited survey of aggregate producers has not revealed any major issues with organic/roots however, just because we do not have a problem and we may be able to comply with the specification revision should not be cause to implementation.

Response:

Upon further review, wood and root pieces exist in several more mines than previously thought but not to the extent that they should pose problems. The specification was not performing well since more than one bridge presented with problems.

The Department based the dimensions on limiting a root length to less than the rebar cover requirement. The half inch width or thickness is based on the worst pieces we observed. This specification does not require a mandatory revision until July 2009. By then, The Construction Aggregate Manual will cover the fact that one failing test does not cause rejection.

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Comment:

Text: Current draft of the specification references, for a test method for the determination of mica schist in granites, FM5-584. However, a review of the current FDOT website for active FM test procedures does not show this method. Knowing this method and it's suitability, practicality and ease of use for aggregate QC technicians is crucial.

Response:

The method has been approved by the Federal Highway Administration and is attached for review. The method will be posted as soon as possible.

2. PROCEDURES

- 4.1 Obtain a representative portion (see Sample Size and Preparation, Section 3.2) of each particle size that represents 5 percent or more of the plus No. 4 (4.75 mm) portion.
- 4.2 Wash and dry the sample.
- 4.3 Depending on the sample's grade (see the Note in Sample Size and Preparation), you may need to test the minus No. 4 (4.75 mm) and the plus No. 8 (2.36 mm) portion also.
- 4.4 Spread each aggregate portion on a large enough area or work table so you can carefully examine the individual particles.
 - 4.4.1 By visual inspection, separate and classify the schist, phyllite or shale separately from the remainder of the sample.
 - 4.4.2 Wet the material or use other suitable visual aids to help you separate the sample.

5. CALCULATIONS

- 5.1 Determine the dry total weight of particles of each size for each sample tested.
- 5.2 Determine the dry total weight of particles of each size for each sample classified as schist, phyllite or shale.

- 5.3 Calculate the percentage of each particle size for each sample classified as schist, phyllite or shale.
- 5.4 Determine the weighted average of schist or phyllite particles calculated from step 3 and based on the grading determined in Sample Size and Preparation.
- 5.5 In these calculations, the weighted average will be based on either the plus No. 8 (2.36 mm) or the plus No. 4 (4.75 mm) gradation, whichever is applicable under Sample Size and Preparation, step 1.

5.6 The calculation will be:

$$A = B \div C$$

where:

A = percent schist, phyllite or shale

B = dry weight of schist, phyllite or shale

C = total dry weight of sample

6. REPORT

6.1 The report includes the following:

6.1.1. Dry total weight of particles of each size for each sample tested

6.1.2 Dry total weight of particles of each size for each sample classified as schist, phyllite or shale

6.1.3 Percentage of each particle size for each sample classified as schist, phyllite or shale.

6.1.4 Weighted average of schist or phyllite particles from Procedures, step 3.

Note: If the sample represents the appropriate portion's grade, split or quarter the sample down to one composite sample of at least the size shown in Table 2. This is in lieu of testing each size separately as described above.

**Table 2: Minimum Size of Sample (grams) to be Tested
(Square Opening Sieve)**

	+ No. 8 (2.36 mm)	+ No. 4 (4.75 mm)	+ 3/8" (9.5 mm)	+ 1/2" (13 mm)	+ 3/4" (19 mm)	+ 1" (25 mm)	+ 1-1/2" (37.5 mm)
- No. 4 (4.75 mm)	50						
- 3/8" (9.5 mm)	150	100					
- 1/2" (13 mm)	350	300	200				
- 3/4" (19 mm)	950	900	800	600			
- 1" (25 mm)	2450	2400	2300	2100	1500		
- 1-1/2" (37.5 mm)	6950	6900	6800	6600	6000	4500	
- 2" (50 mm)	18950	18900	18800	18600	18000	16500	12000
