

MI

GRACE

Construction Products Division

To: R. C. Deskin

Date: February 4, 1987

From: D. D. Walczyk

Subject: Respirable Fiber Control
Development Plans

cc: H. G. Cummings

F. W. Eaton

~~J. M. Wolter~~I. Splitter Test Verification

- The test objectives and procedure are defined in a memorandum, "Splitter Test"; DDW to RCD: January 15, 1987.
- The test protocol defined by Dave Curreri in January, 1987 requires the splitter room exhaust fan to be on during the test period. Fred Eaton does not believe that this requirement provides a repeatable and controllable test condition. An additional 3 repeat tests using ZMI with 6 lbs of mineral oil/bag applied will be run with the exhaust fan off. It is expected that the exhaust fan on or off variation can be measured quantitatively by this technique. Final definition of a test protocol will be made after fiber count results from this test series has been completed.
- The completion schedule for the above test series is indefinite at this time. There was considerable damage to the two skids of test material in shipping resulting in the loss of bags so that only 2 tests of each material can be completed during the week of February 2, 1987. Back-up test materials from Wilder were being shipped on January 30 and February 3. The remaining 5 tests will be run as soon as possible after the arrival of the material.

II. ZMI Development

- Field test results have proven that 1.5 lbs of mineral oil/bag of ZMI can effectively control the airborne fiber release below the required minimum.
- Work is proceeding with the development effort to reduce the amount of oil applied. To this end arrangements have been made with the Portland plant to prepare ZMI/L4 with 1.5 lbs and 0.75 lbs of mineral oil per bag applied. Steve Venuti's group will conduct a field test of these materials.
- Fred Eaton will define the application technique for the plant to produce these test materials.

10003109

II. ZMI Development (cont'd)

- Bob Deskin's plan for ZMI development is to prepare ZMI/L4 test materials with 1.5, 0.75 and 0.375 lbs of mineral oil per bag of ZMI for testing by the splitter test. If comparative tests show that a level as low as 0.375 lbs of mineral oil might be effective he will request a field test of the material for final acceptance. Test materials will be prepared at Wilder during the week of February 9. Splitter tests will be conducted during the week of February 23.
- It is anticipated that there will be additional effort to prepare special L2 and L3 concentrates in an attempt to produce ZMI which meets the minimum fiber release requirements without the application of any further treatment. The schedule for sample preparation and splitter testing will be determined by Jack Wolter.

III. Spray Method Development

- Fred Eaton is conducting a project to develop an improved wetting method over the current technique. A copy of his Project Plan up-date issued February 2, 1987 is attached. The up-date indicates that an alternative method, termed the Attic Method, has been identified which provides uniform wetting.
- The new Attic Method will be used to prepare test materials wetting L-2 with 3 lbs of water/4 cf bag and L-3 with 6 lbs of water/4 cf bag (these are the currently established amounts for the spray-on-the-belt method). At the same time, the same amounts of water will be applied to the same materials using the present method. Materials preparation is scheduled for the week of February 16. Splitter tests will be scheduled for the week of March 9.
- As Fred's plan indicates, he intends to determine the effect of a wetting agent (Pluronic L-62). L-2 at a wetting application of 3 lbs water containing Pluronic per bag and L-3 at a wetting application of 3 lbs water containing Pluronic per bag will be prepared during the week of February 16. This will allow splitter test comparisons of the effect of Pluronic at full and 1/2 of established water application amounts. Splitter tests will be scheduled for the week of March 16.

III. Spray Method Development (cont'd)

- Mineral oil and SBO will be sprayed by the alternative method for mechanical observations during the week of February 16. No test materials will be prepared with oil at this time.
- The Bete WL nozzle used in the alternative method will be replaced by a sonic fog nozzle to determine if the fog nozzle has potential and to define problems which might result from the atomizing air. No test materials will be prepared at this time.

IV. Alternative Oil Considerations

- Test materials spraying SBO on Terralite L-2 and L-3 will be prepared at Wilder. Application amounts will be 0.375, 0.75 and 1.5 lbs/bag. Bob Deskin will arrange for evaluation of effects on horticultural considerations. Sufficient test materials will be held at Wilder for subsequent splitter testing if ok'd by Horticultural Research. Materials will be prepared the week of February 9, 1987. Test schedule cannot immediately be determined.
- SBO at application amounts of 0.75, 1.5 and 6 lbs/bag of ZMI/L4 will be prepared at Wilder the week of February 9, 1987. Material samples will be sent to Phil Carkner to start tests of degradation/oxidation "sniffing" per R. H. Locke directive. Sufficient sample materials will be held at Wilder for subsequent splitter testing. It is likely that splitter testing will be scheduled for the week of March 23.
- It is likely that other oils may be considered in the future. No specific plans for other oils are being made at this time.

V. Reduced Water Application for SCA

- The current application rate of 16 lbs of water per bag of SCA effectively reduces the fiber counts below the required level per field test data. From manufacturing and loading considerations, it would be highly desirable to reduce the amount of water applied.

10003111

R. C. Deskin
February 4, 1987
Page 4

V. Reduced Water Application for SCA (cont'd)

- Test materials of SCA/L4 with the established 16 lb application amount and application amounts of 8 and 12 lbs/bag will be prepared at Wilder during the week of February 16. Splitter testing to compare these materials will be scheduled for the week of March 30.
- Alternatives to water for this product will have to be considered in more detail from both economic and functional considerations. Test materials will be prepared if alternative materials appear to make sense.



D. D. Walczyk

DDW/sy

Enclosure

10003112

Vermiculite Wetting - Phase II

I. Project Plan Up-Date

The objective of the Phase II Project Plan dated 11/10/86 was to develop wetting methods at some locations(s) other than on the belt. In taking this approach, the intent was to reduce manufacturing problems, reduce product breakdown by eliminating the mixer and establish actual product shrinkage. The target goal for any new method was to obtain wetting uniformity equal to or better than the fortified method.

Initial static tests were carried out in Travelers Rest, SC by R. Timmons using various nozzles in a modified bag holder. During the week of 1/19/87 all promising approaches were evaluated on expanded L-2 and L-3 at Weedsport. Preliminary results of these tests indicate:

1. A single Bete Model WL nozzle mounted in the modified bag holder produced the best spray pattern.
2. The nozzle spray angle should be 80°.
3. Wetting is uniform top to bottom and from side to side.
4. Shrinkage/breakdown appears to be less than the fortified method.
5. New bags with sewn bottom are too small to use with this wetting method.

Vermiculite Wetting - Phase II

II. Proposed Tests

A. Single Nozzle - Attic Method

A series of 80° WL nozzles have been ordered based on initial results at Weedsport. A series of tests are scheduled in Weedsport the week of 2/9/87 using the following wetting medium:

1. Water at the established 3 and 6 lbs/4 cf rate for L-2 and L-3.
2. Water with wetting agent (Pluronic L-62) at 1/2 standard water addition rate. Wetting agent concentration has not been established.
3. Oil (mineral, SBO or other) at 1.50, 0.75 and 0.38 lbs/4 cf bag.

B. Fog Nozzle - Attic Method

A sonic fog nozzle will be evaluated using water and oil. These initial tests will only determine if a fog nozzle has potential and what additional work is required such as dust control.

FWE/sy

2/2/87

10003114, A