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OWENS-CORNING FIBERGLAS CORPORATION

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Toledo, Ohio

November 14, 1962

To: Mr. R. C. Amos - Berlin
Mr. J. H. Boynton - New York
Mr. R. J. Paoletti - Toledo
Mr. O. W. Pfeifer - Toledo
Mr. R. F. Shannon - Granville
Mr. W. K. Sidwell - Toledo
Dr. W. C. Taylor - Toledo
Mr. F. C. Wilson - Granville
Mr. W. S. Young - New York

cc: Mr. D. W. Ladd - New York
Mr. A. Marzocchi - Ashton
Mr. J. F. Vyverberg - New York

From: Mr. H. V. Smith - Toledo

Subject: REPORT - KAYLO PRODUCT & PROCESS REVIEW - TOLEDO - 11-9-62

I. Fiber Reinforcements

1. Autoclave must be operated on wet cycles. If moisture is at a 20-40% level out of autoclave, strength retention is attained.

2. Coating must be minimum of 25% by weight (either vinyl or phenolic) to be effective.

3. Adhesion is mechanical; vinyl swells on application of heat (partial decomposition occurs so that residue remains expanded). On thermoset resins, a rough surface must be provided to achieve attachment.

4. Marzocchi will submit three to six candidate coatings for processing through Berlin SID's by December 7th to supply Kaylo samples for physical properties tests by Wilson. Tests to include "K", chloride, impact, and other properties.

   a. Decision - If on December 7th the only coating on glass fiber which works is phenolic, we will proceed in this direction complying with CAS property values. Sales is agreeable to any fiber as long as stress corrosion is not increased. Sales wants improved handleability regardless of fiber used.

   b. O. W. Pfeifer stated that Amosite might be used now as an interim step. Elimination of Amosite raises "K" factor.

      Note: October drop test average: 2.5 @1.

   c. Wet cycle and cores out provides the greatest effectiveness in use of glass fibers. Currently product varies on moisture content due to position within cylinder.

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II. Process Requirements

January 1 target date for start of field evaluation of improved Pipe Insulation only, excluding billets. Process requirements are as follows:

1. Method of adding coated glass fiber to batch - equipment available at Berlin November 19th for test.

   a. Supply of yarn will come from Textiles chopped - must consider delivering roving balls and chopping at Berlin.

   b. Examination of material cost factors.

2. Pouring method must be with cores out. This can be done manually but at a reduction of throughput of 35 to 40%. Initial test on mechanization failed because magnet core holders were inadequate. R. J. Paoletti to provide estimate and timing by December 7th - completion date set for March 31, 1963. Pouring with cores in shows no particular improvement.

3. Stress Corrosion - Sodium Silicate powder can be handled in process - wet Sodium Silicate cannot due to high consistency. Cost is as follows: Powder - .07/# and Rock .03/#. Rock would have to be hammermilled to powder. Use of 5% Sodium Silicate (dry) - process Na-Silicate rock through Jeffrey hammermill and wet mill resultant granules through Bauer mill with Kaylo dust gives no processing problem in pouring operations.

4. Use of glass reinforcement is limited to pipe insulation, excluding billets. Will appraise glass in block starting not later than April 1, 1963; coating equipment design should be based on 200#/hour useage rate x 730 hours per month.

5. Amos to appraise cost of Na-Si in batch by December 7, 1962.

6. Foss Wilson to establish quality control test for Cl^- content in batch.

7. Amos to replace J-M asbestos with other candidate input materials by January 2, 1963.

8. Absorptivity - testing activity to appraise competitive status of Kaylo.

Assignments

Smith 1. Follow up with Westlake on test for Hardness.

V. Smith 2. Test Method for dust 70% complete.

ith 3. Value for "impact" specification - scheduled for 1st qtr., 1963.

H. Boynton 4. Review specification for compressive strength by 12/1.

H. Boynton 5. Get alkalinity specification established.

Assignments (Cont'd.)

V. Smith 6. Outline ground rules for evaluation.

F. C. Wilson 7. Report status of stress corrosion testing by December 1.

R. J. Paoletti 8. Develop prior to 12/1 a schedule and equipment cost estimate for equipment to allow practical use of "Cores Out" pouring technique at Berlin. Desired completion date April 1, 1963.

R. C. Amos 9. Send sample of phenolic ware, which was sent to Kansas City, to F. C. Wilson for test.

R. Paoletti 10. Advise by December 7th whether existing Anderson coating equipment will coat candidate coatings and at what throughput and cost. Also, should coated yarn be shipped pre-chopped or as a roving ball.

R. C. Amos
F. C. Wilson 11. Develop sampling plan to guide future trials on glass fiber reinforced
R. F. Shannon pipe covering.
O. W. Pfeifer

12. Recheck cost increase expected as result of addition of 5% Sodium
R. C. Amos Silicate to Kaylo batch.

F. C. Wilson 13. Check out equipment and techniques to allow plant determination of
R. F. Shannon chloride content of batch.

R Amos 14. Work out raw material selection to secure minimum chloride content in
R. F. Shannon batch.
O. W. Pfeifer

O. W. Pfeifer 15. Produce samples of non-autoclaved high temperature candidate material
J. C. Taylor and secure tests to define properties by April 1, 1963.

H. V. Smith

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