

Research Center
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Transite Pipe Process Study
Plant Experimental Run of Australian Blue Fiber
Substituted for MS Blue in Blend M-360
Task Force Report No. 19

The Task Force investigation to date indicates the following answers to Mr. C. V. Miller's letter of May 14, 1952 on the subject of "Australian Blue Fiber." These results are preliminary and incomplete and represent less than 2 weeks of evaluation, but are given here in accordance with your request for the maximum amount of available information on Australian Blue by May 26, 1952.

Mr. M. S. Badollet has answered the first two questions and the Task Force investigation was concentrated primarily on questions 3 through 6 inclusive. The data has been obtained from one 6 hour run on Manville's No. 2 machine, sag cake work in the Task Force Laboratory and sag cake work in the Transite Pipe Section of the Research Center.

It should be emphasized that the investigations are all preliminary and might not be confirmed by further tests.

Question 3: "Would Blue Asbestos Fiber, shorter than either the African or Australian types now being used, be satisfactory for use in Transite Pipe?"

Answer 3: Although no Blue fibers other than MS Blue and Australian No. 3 Blue were used for test, it would appear desirable to investigate the possibilities of using a shorter grade Blue fiber in Transite Pipe. Cape MK Blue was observed being used in asbestos cement pipe in Italy in 1950 and there is no reason to believe that it could not be incorporated into Transite pipe in this country.

Question 4: "What is the value to our company of using Australian Blue in Transite Pipe either as a partial or 100% substitute for Cape "S"?"

Answer 4: Results of the trial run on Manville's No. 2 machined showed that Australian No. 3 Blue could be substituted for MS Blue in blend M-360-1 and used as a 25 per cent mix, without any changes in machine operation or forming rate. Destruction tests on the 6-in. 150 pipe manufactured during the trial run showed the ultimate strength and net recovery to be approximately the same for either MS Blue or Australian No. 3 Blue, although the ultimate strength for pipe made with Australian No. 3 Blue was slightly lower than for that made with MS Blue. This lower strength was verified by sag cake tests run in the Task Force Laboratory using the fiber blends run on the machine.

Results of the Sag Cake Tests are Summarized
in the Following Table

	No. of Cakes	Filter Time (sec.)	Water Retention Before Pressing	Water Retention After Pressing	Thickness (in.)	MR, psi
M-360-1 (MS Blue)	20	60	42.1%	25.8%	0.259	4310 $\sigma = 184$
M-360-1A (Australian Blue)	20	57	35.5%	24.4%	0.251	3540 $\sigma = 365$

All of the above work was done on fiber which was given only one pass through the willow and was used as a 25 per cent mix. From examination of the M-360-1 and M-360-1A fiber it appeared that the Australian Blue was not being opened and dispersed throughout the blend comparable to MS Blue. This fact was further borne out in the sag cake work conducted by the Transite Pipe Section of the Research Center. Sag cake data to date at the Research Center shows Australian No. 3 Blue with one-pass through the Hammer Mill to have its maximum strength, 4190 psi, at the 20 per cent level. Comparable value for MS Blue with one-pass through the Hammer Mill showed its maximum strength of 4120 psi developed at 25 per cent level. Partial results from further tests are given below:

Blend	Type Blue	Hammer Mill Processing Prior To Blending	Fiber Percentage in Sag Cake	Sag Cake MR
20% Blue 80% 4M28	Australian No. 3	10 passes	20%	4500 psi
Standard M-62 Blend 30% Blue 70% Viny	MS Blue	1 pass	20%	3800 psi

Further sag cake tests are being conducted in the evaluation of the Australian Blue, since the data to date seems to indicate possibilities for the fiber if given additional processing prior to treatment as a blend. After thorough investigation a financial analysis would have to determine the value to Johns-Manville of using Australian Blue.

May 26, 1952

Question 5: "In view of the fact that the delivered price of C&G #3 fiber at Manville amounts to \$348 compared to \$355 for Australian No. 3, would it be advantageous to substitute Australian for the C&G #3, especially in view of the fact that we have no real need for the C&G #4 which must be purchased along with the C&G #3?"

Answer 5: C&G #3 has not been available for the manufacture of Transite pipe for over 6 months. To date, no tests have been conducted to determine the effect of substituting Australian No. 3 Blue for C&G #3, although, based on the data given in answer to question No. 4, the substitution is apparently possible.

Further laboratory tests and a financial analysis would have to determine the economic advantages, if any, in making the substitution.

Question 6: "Could Australian Blue No. 1 and No. 2 be used in Transite Pipe as is, or, if not, could they be processed into a satisfactory fiber for Transite Pipe?"

Answer 6: Difficulty was encountered in making sag cakes with straight Australian No. 3 Blue after one-pass through the Hammer Mill. The long fibers wrapped around and balled up the mixing impeller. It appears that the use of a longer fiber, grade 1 or 2, in Transite Pipe manufacture would result in fouled pump impellers, strings on the agitators, and would not be conducive to steady machine operation.

The results to date are all based on preliminary tests and do not give conclusive evidence that the use of Australian No. 3 Blue fiber as a replacement for MS Blue in Transite pipe is either an advantage or disadvantage. Additional sag cakes work is being conducted at the Task Force Laboratory and the Research Center.

The attached Task Force Report No. 19 covers the preliminary plant run of standard blend M-360-1 with Australian Blue substituted for MS Blue.

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