



MEMORANDUM

cc: Mr. Wood -BBP
Mr. Dusty -BE
Mr. Colvin -MS
Mr. Roelofs -BBH

To Mr. Jackson -BBH
From Mr. Jagocki -BBH
Date May 6, 1982
Subject TRIAL RUN OF MINERAL FELT AT FS

PLAINTIFF'S EXHIBIT

BIR-392

The goal of this trial run would be to make a significant run of mineral felt in two weights.

The 39 lb/480 ft² material would be run into 36" wide rolls for saturated 15 lb. felt. The 55 lb./480 ft² material would be to make shingles so it would be slit into 48" wide rolls.

To get ready for this run, the following steps will have to be taken.

1. To overcome the consistency control problems experienced previously at FO, water meters will have to be installed wherever significant volumes of water are introduced into the stock. For this run we will assume that water sprays in the Jonsson screen, water introduced with Betz 1260 flocculant and water in the vat are constant and irrelevant. The three major areas of introducing process water are the hydropulper, the stuff box and the fan pump.

Initially water is added in the pulper to corrugated baled waste paper (36% by weight), limestone (60% by weight) and Dow SBR latex XD 30374.33 (4% by weight). This initial pulper consistency would be 8%.

The second addition point is at the stuff box where white water is added to bring the consistency down from 8% to 5%.

The third addition point is at the fan pump to bring consistency from 5% to 1%. The 1% goes in the vat to make the sheet.

To eliminate any problems that could be caused by "stale" white water already in the system, this water should be completely drained and replaced with fresh water to start the run. As the machine run starts the white water would be retained as normally done and used for subsequent hydropulper batches and stock dilutions.

2. To allow stock preparation at the hydropulper to be made at a reasonable rate, the bags of limestone will be furnished in a repulpable bag with no polyethylene or other moisture barrier. This will allow the bags to be thrown directly into the pulper with a single slash down the side. A batch of stock will require 56-50 lb. bags of limestone (2800 lbs).

Trial Run of Mineral Felt at FS - Cont.

If the limestone is not available in repulpable bags, a payloader with a large hopper will have to be available. The bags of limestone will have to be cut open and dumped into the payloader in two batches as the 56-50 lb. bags would be 5-1/2 cubic yards of material. The hopper would then hold about 1/2 a batch at a time. Personnel to cut open and dump bags of limestone would be needed to keep stock preparation time at a minimum.

3. For the corrugated portion of the stock, the bales should be clean, "hogged" material that are made up to a relatively standard weight. If the supplier could make up 835 lb. bales (approximately), we would use 2 bales per pulper.
4. The stock would be run in the pulper without the ragger.
5. The stock would be run with steam to get the corrugated to defiber as quickly as possible.
6. Dow would provide a metering pump to add the latex from 55 gallon fiber drums. It would be added equivalent to 186 dry pounds.
7. When a pulper is dumped, it would be run down to a practical level without any flushing water. Because everything in the next batch would be weighed and measured, the stock left in the pulper would not influence the run. The latex is not like glass fiber and additional time would not damage it.
8. The stock would go from the pulper through the centrifiers if no removal of the limestone is noted. If the centrifiers remove limestone, they will have to be bypassed. Dow personnel believe the centrifier would not affect the stock.
9. The material will go over the Jonsson screen to remove pieces of unpulped corrugated and other scrap.
10. The stock will go through the bottom of the thickener and into the 18,000 gallon thick stock tank at very close to the original 8% consistency. (The only water addition would be at the Jonsson screen)
11. The stock would then go to the stuff box and the consistency would be cut from 8% to 5% with metered water.
12. The 5% stock would then go through the jordans completely backed off or preferably it would bypass them completely.
13. The 5% stock would then go into the 18,000 gallon machine chest.
14. After the stock leaves the machine chest it would have 1.0% Betz 1260 flocculant and fresh dilution water added at the "sample port" with a metering pump provided by Dow.

Trial Run of Mineral Felt at FS - Cont.

15. The stock would then go through the machine fan pump with additional metered water to drop the consistency to 1%.
16. The stock would bypass the machine centrifflers.
17. The stock would go through the pressurized machine screen with the screen basket previously removed so there is no action to break down the floc.
18. Betz will provide (2) 1000 gallon tanks and an eductor to make up 1.0% solution.
19. The stock system would be completely filled before starting up the machine. This would be 1.5 pulpers in the machine chest at 5%, 2.5 pulpers in the thick stock chest at 8% and one pulper at 8%. As the machine started up, one additional 8% pulper could be made up. This would be a total of 6 pulpers or 27,800 pounds of stock to be run into either the 55 lb./480 ft² shingle stock or the 39 lb./480 ft² saturated felt stock.
20. When a single system is run into a desired weight, the machine should be shut down until the entire system is filled again. This will minimize not having enough stock to adjust to a particular weight, adjusting degree of flocculation, minimize batches not kept in hydropulper long enough, etc.
21. The felt machine should be started up with its second batch of driers shut down as it is much easier to heat them if necessary than it is to cool them.
22. The 39 lb. mineral felt should be run as close to 250 fpm as possible if the drainage and formation allows this.
23. The 55 lb. mineral felt should be run as close to 200 fpm as possible. If it can go faster a second reel would be made like this.
24. The performance of the initial stock will dictate press setting, machine speed and drier conditions.

Summary of Action required:

<u>Betz</u>	<u>Dow</u>
(2) 1000 gallon tanks	Sufficient SBR latex XD 30374.33
(1) eductor	for 35 tons of felt at 4% latex content
	14 drums with 212 lbs/drum solids
	(1) metering pump for latex
	(1) metering pump for Betz 1260 1.0% flocculant

Trial Run of Mineral Felt at FS - Cont.

Bird & Son

Raw Materials

- (1) 42,000 lbs. limestone filler in bags (repulpable with no polyethylene liner)

This would be 840 - 50 lb. bags
The material would be purchased from

Calcium Carbonate Products Co.
Div. of J. M. Huber

Three grades are being considered and as soon as information is received from Dow Chemical a specific grade will be selected. The grades are:

Macrofil No. 4 - Marble Falls, Texas

C-90 - Carthage, Missouri

Q - 3 - Quincy, Illinois

- (2) Sufficient Betz 1260 flocculant to make up (2) 1000 gallon tanks at 1.0% (approx. 175 lbs. dry solid).
- (3) 25,200 lbs. clean, hogged corrugated packed into bales of as close to 835 lbs. each as possible (30 bales).

Engineering

- (1) Water meters or some other control to monitor water addition at pulper, stuff box and eye of fan pump. This is to control consistencies. 8% in pulper, 5% at stuff box and 1% on machine.
- (2) Have a payloader with a large hopper available if adding limestone by the bag is not possible .
- (3) Fresh water lines to Betz tanks for filling tanks as well as eductor operation.
- (4) Line from Betz tanks to sample port to carry 1% Betz solution.
- (5) Fresh water line at sample port to go with metering pump being provided by Dow.
- (6) Compressed air line at hydropulper to operate latex metering pump being provided by Dow.
- (7) Have piping available to bypass centrifiers out of hydropulper if stock cannot pass through at 8% consistency without being affected.

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- (8) Make sure stock can go through thickener without cylinder being in operation.
- (9) Make sure 5% consistency stock can bypass jordans if brushing highly filled stock is not desirable.
- (10) Remove basket from machine screen so flocked 1% stock can pass through without damage .

RFJ/ac

Robert F. Jagoscki

Attach.

Single Pulper Batch

Limestone	56 - 50 pound bags =	2800 lbs.
Corrugated	2 bales @ 835 lb/bale	1670 lbs.
SBR latex (50% solids) (30374.33)	186 dry lbs.	43.9 gallons
Water	6428 gallons @ 8.33 lb/gal	53,544 lbs.
Total		58,200 lbs.

Pounds of Felt vs Speed & Trim & BW

39#/480 ft² (4) 36" wide rolls + 3" trim

150	fpm x 12.25 feet wide	=	1837.5 ft ² /min.	
			149 lbs/min.	50.1 min.
175	fpm x 12.25 feet wide	=	2144 ft ² /min.	
			174 lbs/min.	42.9 min.
200	fpm x 12.25 feet wide	=	2450 ft ² /min.	
			199 lbs/min	37.5 min.
225	fpm x 12.25 feet wide	=	2756 ft ² /min	
			224 lbs/min.	33.3 min.
250	fpm x 12.25 feet wide	=	3063 ft ² /min.	
			249 lbs/min x .014	30.0 min.

To make 7500 foot rolls, the entire reel will be 7465 lbs.
Each 36" wide roll will weigh 1865 lbs approximately

55#/480 ft² (3) 48" wide rolls + 3" trim

150	fpm x 12.25 feet wide	=	1838 ft ² /min.	33.3 min/500 ft.
			211 lbs/min.	
175	fpm x 12.25 feet wide	=	2144 ft ² /min.	28.5 min.
			246 lbs/min.	
200	fpm x 12.25 feet wide	=	2450 ft ² /min.	25 min.
			281 lbs/min.	
225	fpm x 12.25 feet wide	=	2756 ft ² /min.	22.2 min.
			316 lbs/min.	
250	fpm x 12.25 feet wide	=	3063 ft ² /min.	20 min.
			351 lbs/min.	

To make 5000 foot rolls, the entire reel will be 7018 lbs.
Each 48" wide roll will weigh 2340 lbs. approximately.

Pounds of Felt vs. Speed & Trim & BW - Cont.

78#/480 ft² (4) 36" wide rolls + 3" trim.

150	fpm x 12.25 feet wide	=	1837.5 ft ² /min.		
			299 lbs/min.		23.3 min.
175	fpm x 12.25 feet wide	=	2144 ft ² /min.		
			348 lbs/min.		20.0 min.
200	fpm x 12.25 feet wide	=	2450 ft ² /min.		
			398 lbs/min.		17.5 min.
225	fpm x 12.25 feet wide	=	2756 ft ² /min.		
			448 lbs/min.		15.6 min.
250	fpm x 12.25 feet wide	=	3063 ft ² /min.		
			498 lbs/min.		14 min.

To make 3500 foot rolls, the entire reel will be 6965 lbs.
 Each 36" wide roll will weigh 1740 lbs. approximately.