



DOW CHEMICAL U.S.A.

Memorandum

March 31, 1982

P. O. BOX 1847
2040 DOW CENTER
MIDLAND, MICHIGAN 48640

George Dusty
Bird & Son, Inc.
Washington Street
East Walpole, MA 02032

Dear Mr. Dusty:

It was a pleasure discussing Dow's composite paper technology with you. As a follow up to our conversation I have attached calculations displaying cost comparisons of Type 15 organic vs. composite felts and the potential amounts you can save by making composite.

From laboratory and commercial trial evaluations, a furnish consisting of 36% fiber, 60% filler, and 4% latex gives optimum economics and physical properties. Our weight recommendation for a Type 15 composite felt is 35 lbs/480 ft². The strength of the composite felt would be equivalent to your 27 lb. organic felt.

The attached economics show that the raw material cost for the composite felt is higher than the all organic. However, the composite felt dries at least twice as fast and saturates at only 70% asphalt. This combination makes the total manufactured cost considerably less for the composite.

The manufacturing costs are divided into four parts. The paper and asphalt raw material costs are estimated to be 50% of the total manufactured cost. Energy associated with production of the unsaturated felt is estimated to be 25% of the total. Energy associated with saturation is estimated to be 10%. Wages, maintenance, administration, etc. are estimated to be 15% of the total. Regarding energy reduction associated with composite paper, another option would be to maintain current energy usage and increase production.

Look over the attached economics and compare to your economic evaluation. Upon completion I would be happy to discuss the matter in more detail with you. In the meantime, if I can be of any assistance please do not hesitate to contact me.

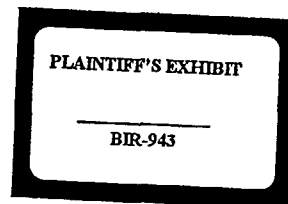
Sincerely,

D. H. Clarey
D. H. Clarey
Designed Products
2040 Dow Center
517/636-3280

Attachments

slk

AN OPERATING UNIT OF THE DOW CHEMICAL COMPANY



BIRD 013986

BIRD & SON, INC.

ESTIMATED RAW MATERIAL COST

TYPE 15 FELT

RAW MATERIAL

COST

Asphalt	\$165	per ton
Corrugated Fiber	\$ 65	per ton
Wood Flour	\$ 45	per ton
Calcium Carbonate	\$ 30	per ton
Latex	\$0.74	per ton
Flocculant	\$2.50	per ton

	<u>ORGANIC</u>		<u>COMPOSITE</u>	
	<u>%</u>	<u>\$/Ton</u>	<u>%</u>	<u>\$/Ton</u>
Corrugated	75	\$48.75	36	\$ 23.40
Wood Flour	25	\$11.25	--	-
Calcium Carbonate	--	-	60	\$ 18.00
Latex	--	-	4	\$ 59.20
Flocculant	--	-	2 Lbs/Ton	\$ 5.00
Total RM Cost/Ton		\$60.00		\$105.60
Total RM Cost/Pound		3.00¢		5.28¢

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PAPER MACHINE CONDITIONS

Basis Weight, lbs/480 ft²
Machine Speed, fpm
Trim, Inches
Pounds Stock/Min.
Tons Stock/24 Hrs.
Sq. Ft./24 Hrs.

ORGANIC

27
150
144
101.25
72.9
2,592,000

COMPOSITE

35
150
144
131.25
94.5
2,592,000

Base Felt RM Cost/24 hrs.
Base Felt RM Cost/Sq. Ft.

\$4,374.00
0.169¢

\$9,979.20
0.385¢

SATURATION

Tons Asphalt/24 Hrs.
Asphalt Cost/24 Hrs.

102.06 @ 140¢
\$16,840.00

66.15 @ 70¢
\$10,915.00

Saturated Felt RM Cost/24 Hrs.
Saturated Felt RM Cost/Sq. Ft.

\$21,214.00
0.818¢

\$20,894.20
0.806¢

MANUFACTURING COSTS'/SQ. FT.

Paper and Asphalt RM (50%)
Energy Ass. Paper Production (25%)
Energy Ass. Saturation (10%)
Labor, Maintenance, Etc. (15%)

0.818
0.409
0.164
0.245

0.806
0.204 (50% of 0.409)
0.123 (75% of 0.164)
0.245

Total Manufactured Cost/Sq. Ft.

1.636¢

1.378¢

SAVINGS

Savings per Sq. Ft.
Savings per 24 Hrs.
Savings per Year (350 Days)
Tons of Asphalt Saved per Day

0.258¢
6,687.36
\$2,340,576.00
35.9

¹ Percentages are of estimated total manufactured cost of an all organic felt.

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