PLAINTIFF'S EXHIBIT

BIR-311

SRD-Dr. Schnizer
BBP-Mr. Wood
BBH-Mr. Sutton
BBQ-Mr. Clark
MS-Mr. Colvin
PSL-Mr. Ladner

RESEARCH AND DEVELOPMENT PROGRESS REPORT

Corporate Technical Center
Bird & Son, inc.

Project No. 007

Report No. 54

Written by R.Jagocki

Date July 17, 1980

Project Title: STUDIES OF PERFORMANCE PROPERTIES OF ROOFING

Subject: Program for Testing Current Bird Shingle Plant Dry Felt & Shingles Made From the Same Felts

Object: To obtain samples of Shreveport 55 lb. dry felt made with Betz Polymer 1260 polyelectrolyte and determine if the weight profile across the web has been affected by this additive.

Conclusions:

1. Shrevport 55 lb. dry felt weight profile has not been affected by the use of Betz Polymer 1260 as a wet end additive. The O.D. weight pattern still shows the high (57-60 lb) edges and low (49-51 lb) center previously reported. *1, *2

Results:

1. Individual O.D. weight profiles were determined on two 55 lb organic felt reels manufactured on 6/23/80 at Shreveport.

2. These weights were determined as before with strips cut 2 inches wide across the web after the removal of normal deckle trim. They were dried in an oven at 230°F to remove moisture as a variable.

*1 Progress Report 28, 9/14/78, R. F. Jagocki
*2 Progress Report 35, 2/13/79, R. F. Jagocki

3. An arithmetic mean (average) and 1 standard deviation was determined for each reel. The deviation data showed the Shreveport felt to be as variable or possibly more variable with the Betz Polymer 1260 than previous profiles without it.

4. The increased speed (with increased drainage rate) that Shreveport has reportedly experienced using the Betz material could possibly make a more variable weight web as the two samples had higher standard deviations than the previous samples.

Discussion:

Shreveport has started evaluating the use of Betz Polymer 1260 to retain the paper fines and mineral additives from waste paper in the organic felt web and thereby reducing the load on the white water (effluent).

The Betz material also has been reported to increase the drainage rate of the felt furnish and provide a drier web to the dryer section for increased speed.

It was of interest to monitor what, if any, effect the Betz material had on the basis weight distribution profile that is quite fixed on the Shreveport machine making heavy (50 to 55) felt. This profile causes heavy edges (about 20" in) on the A and C rolls with light (48-52) B rolls. Strips from two reels were tested as before for primarily O.D. weight distribution every 2". This data was then graphed as before and is attached for observation.

Statistical data for these two webs indicates 1 standard deviation is quite similar between the reels and is slightly higher than previously tested Shreveport felt. It is possible the flocculation and drainage affect of the Betz 1260 makes an even wilder web. This would require more strip weight evaluations to verify.

Data:

See attached graphs and tables

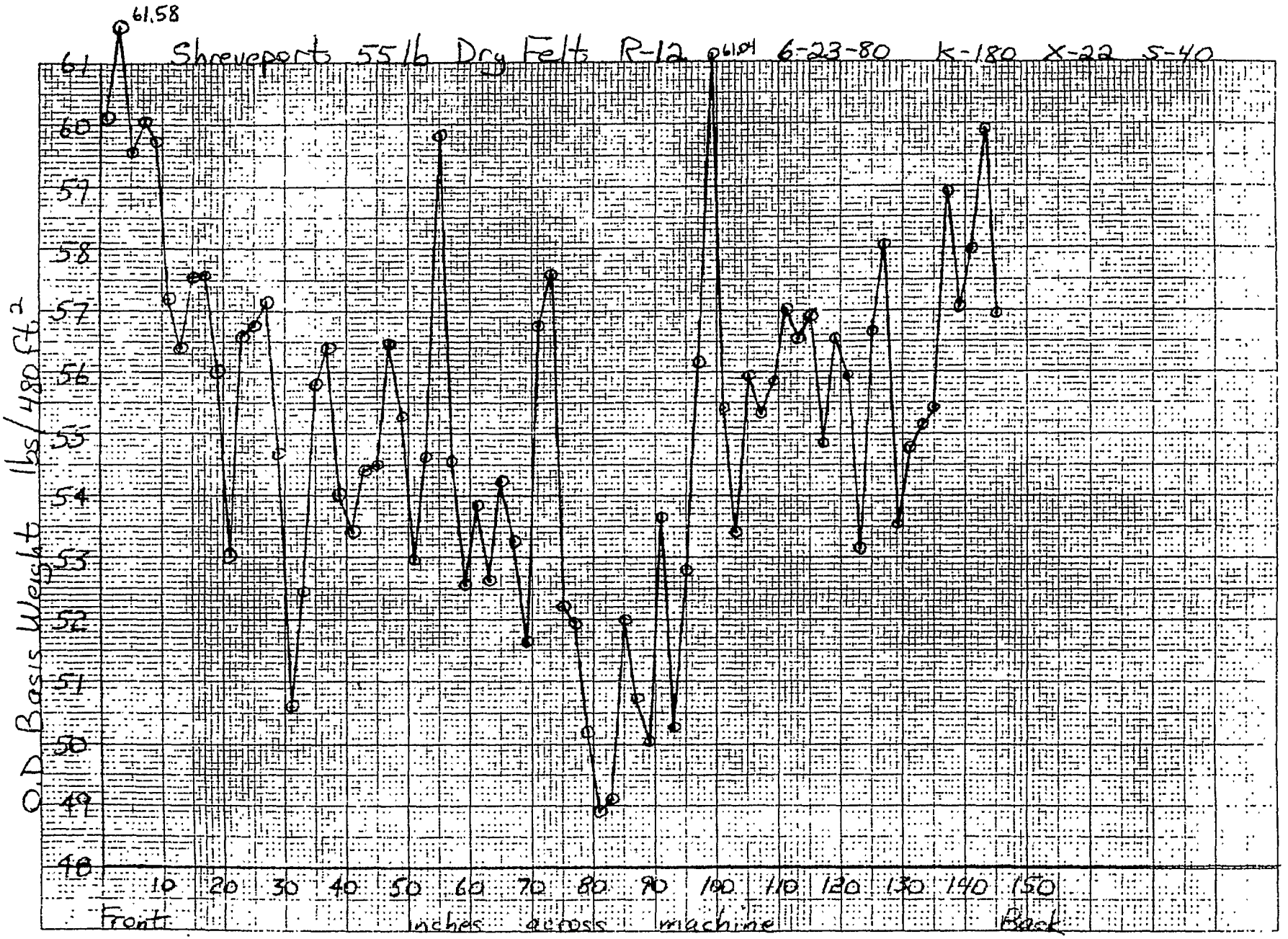
Reference:

R. F. Jagocki, Lab Notebook #346, pp 16, 17

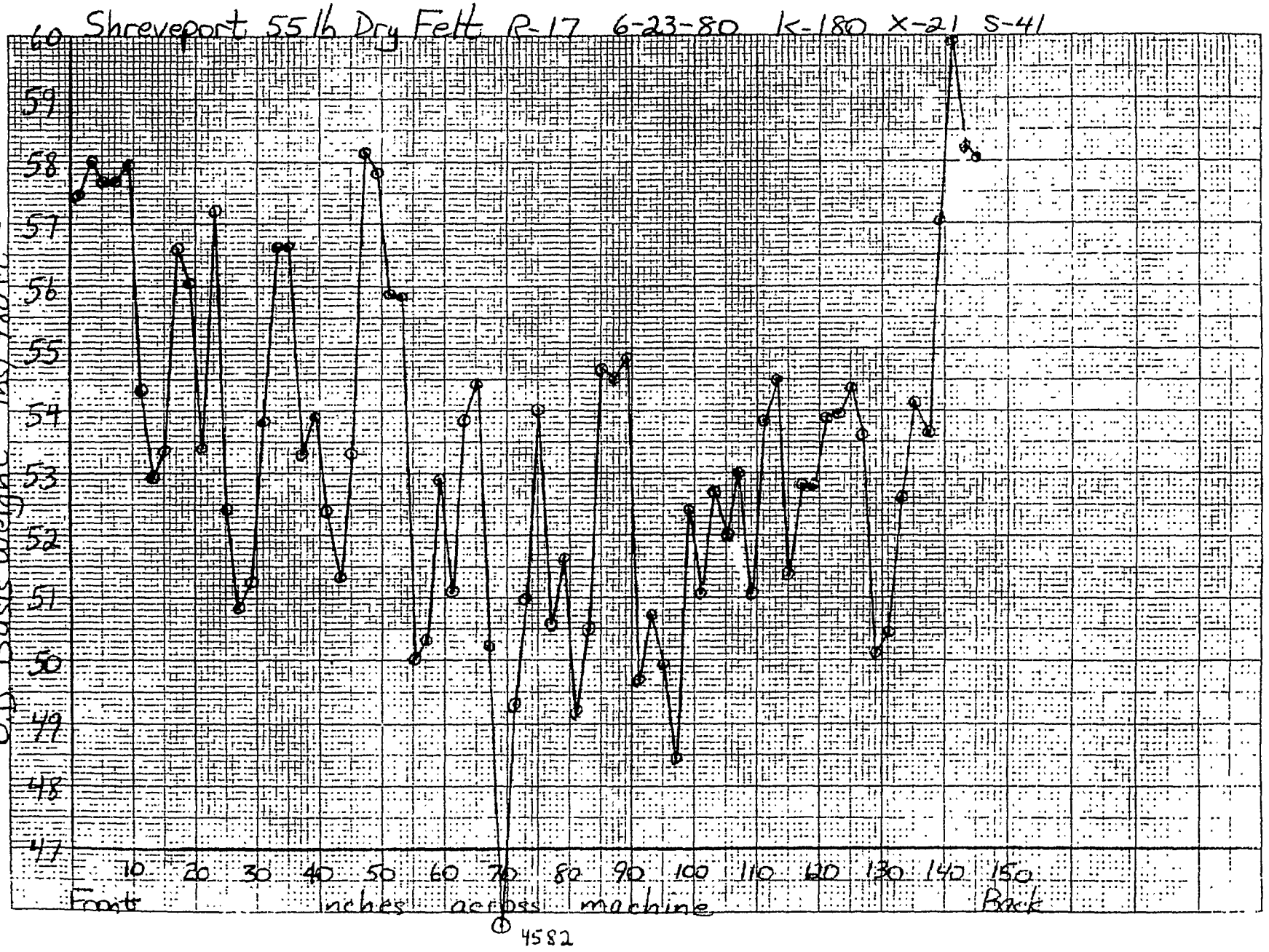
RFJ/ac Robert F. Jagocki

attach.

BIRD 011059


61.58
Shreveport 55lb Dry Felt R-12 6184 6-23-80 K-180 X-22 S-40
O.D. Basis Weight lbs/480 ft.²
61
60
57
58
57
56
55
54
53
52
51
50
49
48
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
Front
inches across machine
Back

BIRD 011060


Shreveport 55 lb Dry Felt R-17 6-23-80 K-180 X-21 S-41
O.D. Basis Weight lbs/480 ft.2
60
59
58
57
56
55
54
53
52
51
50
49
48
47
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
Front
inches across machine
Back
4582

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O.D. BASIS WEIGHT (lbs/480 ft^2)

Front (Aisle) to Back in 2" intervals

Shreveport R-12 6-23-80

Front			
60.10	55.26	56.16	56.96
61.58	52.97	61.04	Back
59.56	54.63	55.40	
60.06	59.83	53.42	
59.74	54.54	55.93	High 61.58
57.19	52.57	55.31	Low 48.90
56.38	53.83	55.84	Range 12.68
57.55	52.62	57.01	Average 55.23
57.59	54.23	56.56	1 std. deviation 2.847
56.02	53.24	56.72	
53.20	51.63	54.86	
56.56	56.78	56.56	
56.74	57.59	55.93	
57.14	52.21	53.15	
54.68	51.94	56.65	
50.60	50.20	58.04	
52.44	48.90	53.56	
55.80	49.12	54.77	
56.38	51.99	55.17	
54.01	50.73	55.40	
53.42	50.06	58.89	
54.41	53.65	57.05	
54.50	50.29	57.99	
56.47	52.80	59.92	

O.D. BASIS WEIGHT (lbs/480 ft^2)

Front (Aisle) to Back in 2" intervals

Shreveport R-17 6-23-80

Front			
57.47	58.17	50.72	57.03
58.01	57.83	49.96	59.92
57.69	55.89	48.43	58.23
57.58	55.83	52.41	58.07
57.96	50.03	51.05	Back
54.31	50.34	52.73	High 59.92
52.95	52.90	52.03	Low 45.82
53.33	51.10	53.01	Range 14.10
56.60	53.88	51.05	Average 53.45
56.05	54.47	53.82	1 std. deviation 2.823
53.39	50.23	54.47	
57.20	45.82	51.37	
52.41	49.30	52.79	
50.83	50.99	52.79	
51.26	54.03	53.88	
53.82	50.59	53.98	
56.65	51.66	54.36	
56.65	49.20	53.60	
53.33	50.50	50.12	
53.93	54.64	50.45	
52.41	54.53	52.62	
51.32	54.86	54.15	
53.33	49.69	53.66	