Report [illegible]
Problem 51-[illegible]
September 27, 1951

Johns-Manville Research Center
Manville, New Jersey

EXPERIMENTAL MILLBOARD-TYPE SHEET PACKING BONDED WITH GR-S DISPERSION FOR GENERAL ELECTRIC COMPANY; MANUFACTURING DETAILS AND TEST DATA

-SUMMARY-

Experimental work was conducted at the Manville plant to develop a millboard-type sheet packing bonded with GR-S and having the same degree of softness as Style 83-S sheet packing.

One experimental batch was produced containing Syntex L-850 (GR-S dispersion) as the binder. During the course of this run, no manufacturing difficulties were encountered during mixing or running of the material on the millboard machine. The stock built up well with good fiber distribution, and no tendency to stick to the forming roll was observed.

The results of this experimental run indicate that the manufacture of the subject sheet is entirely practical.

Samples of the above experimental sheet in thicknesses of 1/16 and 1/8 in. were tested and the results tabulated in the body of this report. The following is a summarization of the test results on the experimental millboard sheet packing bonded with GR-S dispersion:

1. Moderate tensile strength, equivalent to standard Style 83-S.
2. Relatively soft sheet packing, equivalent to standard Style 83-S.
3. Good aging qualities.
4. Good resistance to oil and No. 1 Reference fuel.

The entire PE run, consisting of 47 sheets, 60 x 52 x 1/8 in. thick, and 88 sheets, 60 x 52 x 1/16 in. thick, was shipped by Cooper Jarrett Trucking on August 11, 1951, to the Waukegan plant. This material is to be used for orders placed by the General Electric Company.

PLAINTIFF'S EXHIBIT WV-02979

APPROVED BY: [signature] W. C. Koch

REPORTED BY: [signature] H. J. Palumbo

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This report consists of Summary (1), Tentative Manufacturing Procedure (2), and Test Data (3).

PLAINTIFF'S EXHIBIT 7711.0

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-TENTATIVE MANUFACTURING PROCEDURE-

FORMULA

	Wet Batch Formula	Dry Batch Formula	Per Cent Composition
Syntex L-850*	944 lb	374 lb	27.1
Accelerator	—	4	0.3
Rlua asbestos fiber	1000	1000	72.6
	1944 lb	1378 lb	100.0

*Solids content: 38 to 42 per cent.

SOURCES OF SUPPLY FOR DISPERSIONS AND FIBER

Syntex L-850 purchased from Flintkote Company, Morristown, New Jersey.
Accelerator purchased from Flintkote Company, Morristown, New Jersey.
Rlua asbestos fiber purchased from The Asbestos Corporation of America, Garwood, New Jersey.

MIXING PROCEDURE

a. Fiber added to beater partially filled with water.
b. Roll lowered to medium tight; stock circulated for 1/2 hr.
c. Raise roll and circulate stock.
d. Add accelerator and mix 10 min.
e. Add L-850 dispersion through screen to remove lumps.
f. Entire batch circulated 1/2 hr.
g. Approximately 200 lb alum dissolved in water and added to beater.
h. Drop batch into stock chest and dilute with water to proper consistency.
i. Run on millboard machine to thickness to produce required size when calendered dry in 2 building.

APPROXIMATE THICKNESS OF WET SHEETS

Nominal Thickness of Finished Sheets	Desired Thickness of Wet Sheets	Thickness Range of Wet Sheets
1/16 in.	0.095	0.090-0.100
1/8 in.	0.200	0.195-0.205

TENTATIVE MANUFACTURING PROCEDURE

DRYING OF SHEETS

The wet sheets are stacked approximately three high on a tray and dried at a temperature not lower than 130F nor higher than 180F, until dry. Dried sheets are then trimmed to size and calendered in B building to the required thickness by not less than three passes through the calender.

TECHNICAL DATA

Finished sheets	1079 lb	78.3%
Trim scrap	95 lb	6.9%
White water loss	204 lb	14.8%
	1378 lb	100.0%

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EXPERIMENTAL MILLBOARD-TYPE SHEET PACKING
BONDED WITH GR-S DISPERSION FOR GENERAL ELECTRIC COMPANY;
MANUFACTURING DETAILS AND TEST DATA

-TEST DATA-

MATERIALS TESTED

Experimental 83-S type sheet packing, 1/16 in. and 1/8 in. thick, bonded with Syntex L-850 (GR-S dispersion).

RESULTS OF TESTS:

	1/16-in. Sample	1/8-in. Sample
Normal Tensile Strength in Psi Conditioned 1 hr at 212F		
Longitudinal	1590	1422
Transverse	664	654
Average	1127	1038
Tensile Strength in Psi, Oven Aging 7 Days at 158F		
Longitudinal	1699	1537
Transverse	755	767
Average	1227	1152
Oil Aging 5 Hr in ASTM No. 1 Oil at 300F		
Per cent of original tensile strength retained	60.1	64.7
Per cent increase in thickness	9.5	7.0
Fuel Test, 5 Hr in SR-10 at Room Temperature		
Temporary swell	3.0	3.7
Permanent swell	nil	nil
Pusey and Jones Plastometer Hardness, 1/4-in. Ball	0.52 mm	0.67 mm
Weight per Square Yard	2.8 lb	5.15 lb