

cc: V. J. Labrecque

September 25, 1968

File
To: C. I. Hayden
From: J. A. Ulrich

SUBJECT: ASBESTOS - Millboard
CORBESTOS - Steel-Faced

re: Smith & Kansler Special Asbestos Board
(Alg-1) Plain and Combined as F. S. 296
Corbestos Specials (G8g-5 and G8g-6)

In accordance with your request of June 24, 1968, we have evaluated the roll of special Smith & Kansler asbestos white board received at that time, both plain and combined as F. S. #296 Steel-Faced Corbestos. Data sheets are attached.

The plain board (Lab Code Alg-1) was checked for conformance to P. S. #282. It did not conform, being either too dense for Grade A (uncalendered) or too compressible for Grade B (calendered), depending on which way it is considered. Load-deflections were also run, and again the material was shown to be denser and less compressible than typical uncalendered #70 Board of similar gauge.

In making composites, a sample of the board was taken and found to have a weight of 15.8 g/sq.dcm. and gauge of .061". The gauge of normal uncalendered board of this weight would be .080"/.085", and would be used to make F. S. #296 Corbestos of .070" gauge (if there were such a product). Therefore, the experimental board was combined on the basis of weight to make .070" gauge F. S. #296 Special, Code G8g-5. Additional material was combined on the basis of gauge to make F. S. #296 Special, Code G8g-6, of approximate gauge .052", just as if the experimental board were normal weight material of its particular gauge.

The composites were tested for load-deflection, relaxation, and crush-extrusion properties, and compared to each other. As neither .070" nor .052" gauges are standard, there is no regular material against which we could compare these experimental versions. However, the G8g-5 represents a normal condition of density, while the G8g-6 represents overly dense material; and a comparison of one to the other shows the differences from a normal condition of combining by weight, if combining were done strictly by asbestos gauge without regard to weight. Note especially in load-deflections, that at lower loads the G8g-5 compresses less, while at higher loads the G8g-6 compresses less. The lower deflection at higher

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loads of the G8g-6 is as would be expected due to its density. The lower deflection at lower loads of the G8g-5 may be due to the greater support given by the prongs of the two steel facings, the prongs not being fully collapsed as for the G8g-6.

The crush-extrusion shows considerably less deflection under load for the G8g-6 than for the G8g-5, as expected. However, the yield points for both are about the same. Also, relaxation figures are about the same for both composites.

You also asked that blanking and handling characteristics be checked. Both the G8g-5 and G8g-6 handled well and blanked satisfactorily. There were no problems of delamination.

It is concluded that the Alg-1 asbestos millboard is much denser than normal asbestos millboard and hence does not meet standard physical requirements. When combined as F. S. #296 Corbestos, a material with entirely different physical properties results when combining on a basis of gauge than when combining on a basis of weight. If this material were to become a production item, it could not be used in composite constructions on a basis of gauge if it were necessary to maintain the physical properties which result when used on a basis of weight, with respect to the gauge and weight requirements presently specified in the specifications and standards involved.

Materials Development Laboratory

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LABORATORY DATA SHEET ASBESTOS MILLBOARD & CORBESTOS

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re: S&K Special white board (Alg-1)

plain & combined as F.S.#295

SUBJECT

Corbestos specials (G8g-5), (G8g-6)

DATE 9/25/68

A. PLAIN MATERIAL			Alg-1	P.S.#282 Grade A	P.S.#282 Grade B
Gauge, average			.0585"	--	--
Density, lb/ft ² -in. thick			5.52	4.00-5.25	4.75-5.75
Compressibility at 1000 psi			17.8 %	16 - 25 %	6 - 15 %
Tensile strength, psi			600	175 min.	200 min.
Ignition loss			18.6 %	20 % max.	20 % max.
Moisture			1.4 %	2 % max.	2 % max.
Water resistance, 24 hrs			OK	No disint.	No disint.
Load-Deflections				(#70 Board typical. uncal.)	
@ R.T.					
@ 1000 psi			.0035" 6.4 %	--	
@ 2000 psi			.0087" 15.8 %	--	
@ 5000 psi			.0162" 27.6 %	--	
@ 10000 psi			.0207" 37.6 %	--	
@ 300°F					
@ 1000 psi			.0055" 9.8 %	.0105" 16.5 %	
@ 2000 psi			.0105" 18.7 %	.0148" 22.7 %	
@ 5000 psi			.0177" 31.6 %	.0228" 34.8 %	
@ 10000 psi			.0224" 40.0 %	.0287" 44.0 %	

gall

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MADE IN USA VG 2233

LABORATORY DATA SHEET

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ASBESTOS MILLBOARD & CORBESTOS

re: S&K Special white board (Alg-1)

SUBJECT

plain & combined as F.S. #296

Corbestos specials (G8g-5), (G8g-6)

DATE

9/25/68

B. COMBINED AS F.S. #296 CORBESTOS ON BASIS OF WEIGHT AND GAUGE				G8g-5 (basis of weight)	G8g-6 (basis of gauge)
Gauge, combined, air				.070"	.052"
Load-Deflections @ R.T. @ 1000 psi				.0045" 6.4 %	.0050" 9.5 %
@ 2000 psi				.0066" 9.4 %	.0064" 12.0 %
@ 5000 psi				.0140" 19.8 %	.0083" 15.5 %
@ 10000 psi				.0214" 30.4 %	.0098" 18.4 %
@ 300°F @ 1000 psi				.0059" 8.3 %	.0066" 12.2 %
@ 2000 psi				.0078" 11.0 %	.0079" 14.6 %
@ 5000 psi				.0158" 22.2 %	.0096" 17.7 %
@ 10000 psi				.0220" 31.0 %	.0111" 20.3 %
Caterpillar Relaxation @ 212°F				24 %	23 %
Crush-Extrusion @ 300°F					
@ 5000 psi Original thickness				.0700"	.0520"
Thickness under load				.0485"	.0440"
Final thickness				.0580"	.0500"
Thickness reduction under load				.0215" 30.7 %	.0080" 15.4 %
Final thickness reduction				.0120" 17.2 %	.0020" 3.9 %
@ 10000 psi Original thickness				.0710"	.0520"
Thickness under load				.0450"	.0420"
Final thickness				.0530"	.0495"
Thickness reduction under load				.0260" 36.6 %	.0100" 19.7 %
Final thickness reduction				.0180" 25.4 %	.0025" 4.8 %
@ 15000 psi Original thickness				.0710"	.0520"
Thickness under load				.0440"	.0405"
Final thickness				.0530"	.0490"
Thickness reduction under load				.0270" 38.0 %	.0150" 22.8 %
Final thickness reduction				.0180" 25.4 %	.0030" 5.8 %
Yield point, psi				50,000	50,000

gall

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