OC-42-2

OWENS-CORNING FIBERGLAS INTRA-COMPANY CORRESPONDENCE

To R. M. Moyer - Berlin

From O. W. Pfeifer - Toledo

Subject KAYLO IMPROVEMENT PROGRAM

Date June 14, 1962

cc: R. C. Amos - Berlin
R. E. Grimmie - Berlin
J. A. Pershing - Toledo
R. F. Shannon - Granville
W. C. Taylor - Toledo

The GP Quality Control Department Monthly Report for May, 1962, issued by H. V. Smith states on page 3, under General Comments regarding the Audit held at Berlin on May 25, 1962: "The results on Kaylo products made with the new formulation were disappointing. Based on material examined, there is no realistic basis for any announcement or promotion of a product improvement." Everyone, whether actively engaged in the Kaylo Improvement Program or not, has been keenly disappointed at our inability to match the results of test trials, in day to day production. This is in relation to number of drops, impact results, which make for improvement in handleability.

Therefore it is imperative that we immediately search out any and all areas, where we might not be obtaining the best processing performance.

I. DRY MILLING ASBESTOS

One of these areas is the dry milling operation of asbestos fibers through the 36" Bauer Mill. If this operation is performed efficiently and if the equipment is correctly set up, the asbestos will be opened in a manner that gives test results of more than 2.9 drop average, using batch amounts of 500 lbs. of W3 amosite. This has already been done.

We realize that 200 lbs. of AW amosite has been used in the K-10 light density batch over the past several months. A few test runs did not indicate a noticable reduction in impact resistance.

The week after week production test checks showed that the W3 - AW combination did not give as high a drop test average as straight W3. The W3 amosite or its supposedly equivalent K3 amosite, is now available for use with the 4T3 chrysotile. This variable has now been eliminated.

The tests which J. B. Rhoads has shown monthly indicate an increase in number of drops for complete breakage. These are listed as a matter of record and review. These drop values are on 4 x 1 half sections taken from daily production and reflect all variables of course, not just dry milling of asbestos.

Date	No. of Pieces Tested	Drops Obtained 1	2	3	4	5	6	Avg.
7/61	20	-	12	5	3	-	-	2.55
8/61	150	7	113	30	-	-	-	2.15
10/61	125	9	98	18	-	-	-	2.00
11/61	80	2	67	10	1	-	-	2.125
12/61	105	3	74	27	1	-	-	2.30
1/62	90	4	72	12	2	-	-	2.13
3/62	105	3	55	30	15	1	1	2.6
4/62	135	3	30	75	25	2	-	2.9 *
5/62	125	3	29	77	15	1	-	2.9 *

* Contained 1/2% Glass Fibers
300# W3 Amosite
200# AW Amosite
100# 4T3 Chrysotile
400# Dust - when available

The last 90 days have indicated an improvement in the 3 drop - 4 drop range with less percentagewise in the 2 drop area.

There are three areas to check in this operation:

1) The rate of feed, which is by an individual and by hand. This must be at as near a constant rate as possible and at the amount which gives the best fiber opening. This rate must be determined through trials. J. A. Pershing and H. R. Colegrove are working on the design, a screw feed, or a combination of screw-variable speed conveyor feed, to constantly control this Bauer Mill input rate.

When the mill is fed too fast it is possible to secure attrition of the fiber length. Several months ago you and I went through this exercise and even clogged the mill at will.

2) The maximum opening of the W3 amosite, now the important asbestos fiber for imparting strength to the end product, also depends on the sharpness of the revolving and stationary plate teeth. These mill plates are made of hard metal, but will experience some blunting, even when the mill is reversed daily and we presume it is. If not the procedure should be set up to do so. The degree of bluntness will have to be determined by condition checks, correlated with examination of dry fiber. We know the degree of wear on wet milling plates has an effect on the fiberizing of the asbestos, which has a definite negative action on processing and the physical properties of the end product. The same recognition of the state of wear of these plates must be established. There will be some relationship as to tonnage opened and time elapsed. These plates will have to be changed when such a negative conditioning of the asbestos results, in order to maintain the peak opening of the asbestos fiber, on a dry basis.

3) The tested opening of the devil tooth plates, indexed from the maximum "in" position, at Bauer's Lab in Springfield, was 0.375". Because initially, due to build up from within the asbestos tanks into the mill, this was increased to 0.575". It never has been definitely proved that the 0.375" opening did not give the best opened fiber. This point should be cleared and tests made at 0.375" plate opening. The expedient may have inadvertently become the standard.

We have given considerable thought as to how to establish these facts. Special test runs have been made several months ago and favorable results obtained. It is the production test checks day in and day out that must show the improvement the special test checks indicate are possible to achieve.

What ideas do you and Messrs. Amos, Grimmie, Rhoads and others have that might decrease this range and raise the production test checks? Item 2, the condition of the mill plates can be an immediate starting point. Item 3, can follow almost immediately. Item 1, using the present method of asbestos dumping into Bauer Mill is going to be more difficult to uniformly control, until a screw-conveyor or other control device is available. The insertion of some cross bars to make up a grill or grating prior to entrance to the feed chute, may tend to afford some semi-regulation of the feed rate by keeping large asbestos chunks from directly falling into the mill. These would have to be reduced in size by being forced through the grating openings. The plant may have a better method.

R. F. Shannon's report of 6/11 on trial results of Proctor and Schwartz Dry Milled Asbestos, using W3 amosite, run at Berlin with cores in, poured on #2 line, gave an average of 3.8 drops. Same line, cores out, gave 5.8 drops. Poured #3 line cores out, Research nozzle, 6.8 drops. Mixing with small hydrapulper - bucket poured - cores out #3 line gave 10.6 drops.

	Formulation	% Amosite	% Chrysotile	Total Asbestos	Glass Fiber	Cores	Avg. Drops	Drop Range	Remarks
(1)	10L 1 x 5	17.79	2.96	20.75	None	out	6.2	5-9	Dry milled 36"
(2)	10L 1 x 2	15.28	3.06	18.34	-	in	5.5	5-7	" " "
(3)	10L 1 x 2	15.28	3.06	18.34	-	out	5.3	4-8	" " "
(4)	10L 1 x 5	17.79	2.96	20.75	-	in	4.6	4-6	" " "
(5)	10L 1 x 7	18.12	-	18.12	0.51	in	4.6	4-6	" " "

Bauer Mill dry opened W3 amosite with "cores in" at 15% amosite - 3% chrysotile gives an average of 5.5 drops. Proctor-Schwartz test results for opened W3 with "cores in" produced 3.8 drops. The Bauer Mill "cores out" drop average was 5.3. Proctor-Schwartz was 5.8 drops. Daily production tests of similar formulation do not yeild the Proctor-Schwartz 3.8 drops, yet alone the Bauer Mill 5.5 drops, with the "cores in" method. We must discover what are the contributing variables that are present in the dry mill processing of asbestos, that makes regular production pipe insulation to have a lower drop

test value than special test batches. We do not think rerunning special test batches is the answer. How do you think we should proceed? What do you propose?

This assignment is stated in Item 2 on page 2 of Kaylo Process and Product Review minutes of meeting on June 1, 1962.

O. W. Pfeifer

OWP:mrm