

FILE NAME: Owens-Corning (OC)

DATE: 1961 Sept 22

DOC#: OC018

DOCUMENT DESCRIPTION: Memo - Glass Reinforced Kaylo

INTER-COMpany CORRESPONDENCE

TECHNICAL CENTER - GRANVILLE, OHIO

FROM OF Mr. L. E. Boyd - Toledo

September 22, 1961

TO: R. F. Shannon

SUBJECT: GLASS REINFORCED NYLON

Dr. L. F. Fiefield - Toledo
Mr. W. K. Sidwell - Toledo
Mr. R. C. Anos - Berlin
Mr. Wayne Johnson - Toledo
Mr. O. W. Pfeiffer - Toledo
Mr. W. C. Taylor - Toledo
Mr. A. C. Siefert - Granville

With reference to your memo dated September 15, 1961, we should have a lot of data for the November 6th Business Outlook Meeting.

For your October 24th interim meeting, we have the following to report:

- (1) We are working in cooperation with Glass Research on the evaluation of new glass compositions as reinforcement for Nylon. Four glasses have been given preliminary screening to date. Only one warrants further evaluation, a high silica glass identified as K-515 will be fully tested in Nylon since it did hold up to some degree in the preliminary test. Glasses identified as K-57B (high alumina and high magnesia), K-934 (high alumina), and a chrome treated refractil would not withstand autoclaving. In view of our initial success with coated E glass fibers, I question whether we would want to go to these more exotic glasses which are costly and difficult to form.
- (2) Our work with coated E glass fibers has been limited to just two coatings, asphalt (very yams from Berlin) and vinyl chloride coated Fiberglas screening base stock. Both of these coated fibers withstand autoclaving sufficiently to warrant their possible use in Nylon. The problem with coated glass yarns is the fact that once the organic coating deteriorates or melts away in the autoclave, the fiber remains in a void of larger diameter than the fiber itself. Consequently, there is no bond whatsoever remaining between Nylon and the fiber. Our program for the next month involves application of various organic or organic-inorganic coatings which should have a better chance of standing up to autoclaving conditions. We must somehow, maintain the bond between Nylon and glass fibers. A possible method of tying the glass to the Nylon would be the use of the "coated wire" concept. We plan to apply a coating to the yarns which form "warts" on the surface. One possible method would be to dust the resin coated yarns with fine sand just before cure. This would give us at least mechanical hinging.
- (3) By nature I like to try things which most people would immediately rule out. Yesterday, we added excelsior to a small pan of Nylon.

YES
NO
DESTROY NOV
OTHER

WHY FILE THIS?

PLAINTIFF'S
EXHIBIT

OCF-17

September 22, 1951

Surprisingly, it held up fairly well in the autoclave. Since the sample was too small for formal testing, I threw the sample as high as I could above a concrete floor. To my surprise the sample only cracked, it did not break. In fact it did not break even after a second toss into the air. Ekelcor shrinks during autoclaving. This breaks any bond which might have existed between Kaylo and the fiber surface. Ekelcor impregnated with some materials which prevents shrinking might work. We plan to follow up this idea even though it does not involve glass fiber.

Our work during October will involve evaluation of

- (1) Textile and wool waste including brushing drippings.
- (2) Organic and organic-inorganic coated glass fibers.
- (3) Experimental glasses submitted by Glass Research.

There is some confusion among various people in our company, as to our objective in the reinforcement of Kaylo with glass fibers. With the possible exception of textile and wool waste, we do not plan to add any more glass than is necessary to give the result we are seeking. We do not plan to substitute glass pound for pound for asbestos (asbestos 4-10 cents per lb. - glass 40 cents and up). We will use it in place of the asbestos, probably in the range of 2-5% by weight. Of course we might improve physical properties, I would prefer to increase the amount of Kaylo dust which also have in great quantities, to control viscosity, etc, of the Kaylo batch.

R F Shannon

R. F. Shannon

bcc: M. Armstrong

OWENS CORNING FIBERGLAS CORPORATION

INTRA-COMPANY CORRESPONDENCE

TECHNICAL CENTER - GRANVILLE, OHIO

ATTENTION OF: Mr. B. E. Boyd - Toledo September 22, 1961

FROM: R. F. Shannon Dr. L. P. Biefeld - Toledo
Mr. W. K. Sidwell - Toledo

SUBJECT: GLASS REINFORCED KAYLO Mr. E. C. Ames - Berlin
Mr. Wayne Johnson - Toledo
Mr. O. W. Pfeifer - Toledo
Mr. W. C. Taylor - Toledo
Mr. A. C. Siefert - Granville

With reference to your memo dated September 19, 1961, we should have a lot of data for the November 6th Business Outlook Meeting.

For your October 4th interim meeting, we have the following to report:

- (1) We are working in cooperation with Glass Research on the evaluation of new glass compositions as reinforcement for Kaylo. Four glasses have been given preliminary screening to date. Only one warrants further evaluation. A high glass identified as X-815 will be fully tested in Kaylo since it did hold up to some degree in the preliminary test. Glasses identified as X-57E (high alumina and high magnesia), X-934 (high alumina), and a chrome treated refrasil would not withstand autoclaving. In view of our initial success with coated E glass fibers, I question whether we would want to go to these more exotic glasses which are costly and difficult to form.
- (2) Our work with coated E glass fibers has been limited to just two coatings, asphalt (warp yarns from) and vinyl chloride coated Fiberglas screening base stock. Both of these coated fibers withstand autoclaving sufficiently to warrant their possible use in Kaylo. The problem with coated glass yarns is the fact that once the organic coating deteriorates or melts away in the autoclave, the fiber remains in a void of larger diameter than the fiber itself. Consequently, there is no bond whatsoever remaining between Kaylo and the fiber. Our program for the next month involves application of various organic or organic-inorganic coatings which should have a better chance of standing up to autoclaving conditions. We must somehow, maintain the bond between Kaylo and glass fibers. A possible method of tying the glass to the Kaylo would be the use of the " wire" concept. We plan to apply a coating to the yarns which form "warts" on the surface.; One possible method would be to dust the resin coated yarns with fine sand just before cure. This would give us at least mechanized hinging.
- (3) By nature I like to try things which most people would immediately rule out. Yesterday we added excelsior to a small pan of Kaylo.

Surprisingly, it held up fairly well in the autoclave. Since the sample was too small for formal testing, I threw the sample as high as I could above a concrete floor. To my surprise the sample only cracked, it did not break. In fact it did not break even after a second toss into the air. Excelsior shrinks during autoclaving. This breaks any bond which might have existed between Kaylo and the fiber surface. Excelsior impregnated with some materials which prevents shrinking might work. We plan to follow up this idea even though it does not involve glass fiber.

Our work during October will involved evaluation of

- (1) Textile and wool waste including bushing drippings.
- (2) Organic and organic-inorganic coated glass fibers.
- (3) Experimental glasses submitted by Glass Research.

There is some confusion amount various people in our company, as to our objective in the reinforcement of Kaylo with glass fibers. With the possible exception of textile and wool waste, we do not plan to add any more glass than is necessary to achieve the result we are seeking. We do not plan to substitute glass pound for pound for asbestos (asbestos 4-10 cents per lb. - glass 40 cents and up). We will use it in addition to the asbestos, probably in the range of 2-5% by weight. Of course we might replace some of the short asbestos with textile and wool waste. Unless the glass waste improves physical properties, I would prefer to increase the amount of Kaylo dust which we also have great quantities, to control viscosity, etc, of the Kaylo batch.

R. F. Shannon

RFS:ea