Gene Wilde - General Offices

November 16, 1967

ESSEX CHEMICAL COMPANY

W. F. Mayehoff - St. Louis
J. R. Darby - JFQ
J. P. Lomberg - New York
→ M. W. Touchette - JFQ
Al Morgan - JFQ
Ed Kaiser - New York

FILE

DATE OF CALL: November 10, 1967

FOR ESSEX: Len Liebowitz — Home no.

FOR MONSANTO: E. C. Wilde
E. L. Kaiser — 201 - 727 - 2100

Objective: Attempt to establish Santicizer 1707 as the replacement product for Aroclor 1254 in polysulfide sealants.

Results: Liebowitz was very open with his evaluation information. He wants to work with any and all who can give him the plasticizer that will meet all tests for automotive window sealants. Unfortunately, Santicizer 1707 only made it through two tests and then was eliminated from the running. Flexchlor 60 is the product of choice at present but will probably be replaced because its activity isn't good and supply is uncertain. Great effort being placed by ICI to get Cereclor S-52 established. Two tests that are run initially by Essex are the pen test and the activity or work life test. Both tests use the same type of samples. The polysulfide mix is prepared and used as is. The curing pastes are prepared, one slow and one fast. The slow paste is used as is. The fast paste is used as is and after a 72 hour 130° F. aging. The pen and activity tests are then run.

On the pen test the results were:

	Unaged	Aged
Flexchlor 60	1.5	1.7
Cereclor S-52 (unstab.)	1.7	1.8
Chloroparaffin 500	1.2	1.4
Santicizer 1707	1.4	1.9

Liebowitz says the lower the pen number the better the cure. All products are acceptable except Santicizer 1707. The difference between 1.4 and 1.9 indicates a problem in uniform curing.

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The activity test is where Santicizer 1707 got into trouble. The cure never did seem to be complete. The results were:

	Unaged	Aged
Flexchlor 60	60	75 Min.
Cereclor S-52 (unstab.)	45	45 "
Chlorowax 500	15	60 "
Santicizer 1707 over	90	90+ "
Chlorowax 500X	45	60 "

The standard is Arochlor 1254 which gives readings in the 30 to 45 minute range. Using this test, Flexchlor 60 is not good; Chlorowax 500 is out; Chlorowax 500X is improved but still has too wide a difference; Cereclor S-52 is perfect; Santicizer 1707 never did indicate a cure, thus it was eliminated.

The Cereclor 42 is out because of basic compatibility problems. Cereclor S-52 regular had curing problems but ECI advised that the epoxy stabilizer used affected the cure rate. The Cereclor S-52 unstabilized does not have epoxy. It is difficult to handle and ECI does not want to ship it in the unstabilized form. ECI and Essex are working on a different stabilization system. If they find one that does not affect cure, they are in.

Diamond Alkali says they have not found any signs of surface greasiness using these chlorinated paraffins. They use a 3 roll mill for paste preparation and observe no differences.

It was mentioned that slight traces of acid greatly changes the cure rates. Quantities of acid in low ppm will give poor cure.

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It may be that we will need further identification of tests and raw materials used. If so, I feel we can go directly to Liebowitz for the information.

Santicizer 278 seems to have gained some interest for Essex's polyurethane sealants. They have high hopes for this product. They have had successful trials at G.M. but just when and if G.M. goes, no one knows. Even though Santicizer 278 is on top for polyurethanes, it does have problems. Liebowitz says he believes there is some residual acid in Santicizer 278 which slows down his cook. He cooks a pre-polymer and at the end adds plasticizer. Santicizer 278 slows the reaction down too much. He has asked if we can further wash the product.

Action: Research - review the Santicizer 1707 problem and advise. We will develop any additional data required. Goal now is to duplicate the Cereclor S-52 unstabilized performance.

On Santicizer 278, can we prepare a lower acid product? I'd like to supply Liebowitz with a small quantity of the best we can get that is plant reproducible.

Gene Wilde

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