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CHEMICALS AND PLASTICS

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Date March 14, 1969

Originating Dept. Research and Development Department

Answering letter date

Subject R-G244 Quality Control

Copy to Messrs. W. L. Carrick ✓
F. D. Dexter
H. B. Rhodes
J. A. Riddle
N. J. Setter
J. E. Skvarla
W. S. Young

We all (including me) need to keep in mind our purpose in looking more closely at R-G244 quality control. Everybodys interest has been focused thereon by our experience with De Gussa, Koppers, Ohio Sealer, and others who have either commented on our product variability or actually requested narrower specifications than we now have. This, it seems to me, is reasonable and its accomplishment a natural part of our increasing production experience. I think we all tend to forget that we are not suggesting a crisis situation and there is no need for anyone to push the panic button.

John Skvarla and I have volunteered to help accomplish certain goals if you need us. Those goals should include, we think, a lower product pH and narrower limits for polyester viscosity. We believe the pH should be 8.5 ± 0.5 and, at least for the short haul, viscosity limits 35,000 ± 5000 cps by our current test. We should strive to learn enough to narrow those viscosity limits to ± 10% eventually. Our other specs appear to be reasonable as they are.

By way of confirming our telephone conversation, we should improve the following four areas:

1. Polyester Viscosity Test

Poor as it is, it's all we have for now with no real immediate prospects for developing a better one. One way to improve its reliability, however, is to select a quantity of "standard" R-G244 and require each operator to test it periodically. This builds up a backlog of data which really standardizes the standard. It also allows the monitoring of test operator, test equipment, and (most importantly) the quality of the Paraplex. (You can spot a bad batch right away.) Normal quality control practice is for each operator to run the control standard each day that a given test is performed. We could start out with 2 or 3 such tests per week.

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2. pH Control

The R-G244 we have received over the past 10 months (and De Gussa's samples, too) give a pH in water slurry of about 9.0-9.7. This is the same as HPO or R-G144. I believe this is due to the fact that silicate and acid additions are done on a quantity rather than a pH basis. I do not understand how you are determining silicate and acid quantities. However, I believe you said you are adding stoichiometrically equivalent amounts. If so, you can only end up at your original, asbestos pH and the amount of silicate in relation to asbestos becomes critical.

Acid addition should be made to a pH of 8.0 over a period of time to attain a stable pH and ensure proper conditions for the silica precipitation. One alternative would be to control pH in your filter press feed tank at 8.0 maximum. If this is not practical, an arbitrary 5-10% excess acid could be added to the product treatment tank. In any case, proper pH control will prevent excess sodium silicate from remaining in the finished product.

3. Cyclone Control

In order to assemble data to help optimize R-G244, we should begin collecting the following on a regular basis:

Magnetite Content	- COF (every 2-3 hours)
+200 Mesh	- COF (every 2-3 hours)
+10μ	- COF (every 8 hours)

These data would be in addition to the % solids and temperature from the Fitz mill and COF which are already measured.

I believe that these numbers will show normal plant fluctuations which we can then try to correlate with analyses of finished product. These test values, however, will be only as useful as the regularity with which they are taken.

4. R-G244 Product Tests

Finished product should be tested for pH, viscosity, % moisture, dry bulk, +100 mesh wet screen analysis pretty much as is now being done. I would suggest a complete analysis for each pallet. If this is too many tests, I would composite several pallets rather than omit some of the tests.

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The data and any conclusions we hoped to get from the Kisiel and Chwastiak sojourns in King City have not materialized. We are starting again, but not from the beginning. I think we have come a long way and can eventually find the solution.

Your plans for blending off out-of-spec batches seem to me a good interim solution to get us into the 30 ± 5 viscosity bracket. As long as it does not raise our costs inordinately, we could probably live with it for some time. I believe the suggestion of introducing "new improved R-G244" in the "20 to 29," "30-39," and "above 39" categories is a good last resort. (In fact, I rather like the idea.) We could number them 229, 339, and 390.

In the meantime, the test results which we have suggested getting will help us learn more, particularly about the COF circuit. As you have no doubt deduced from my suggestions, which include some of Skvarla's, we feel that our most pregnant control area is the COF.

I believe we agree on most of the above ideas but we need to work out a practical means of getting the necessary data. Please let us have your comments.

R. E. Byrne, Jr.

REB/bsn

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