Monsanto

FROM (NAME & LOCATION) L. D. Press - St. Louis General Offices

DATE December 6, 1968

SUBJECT KIMBERLY CLARK

REFERENCE PLASTICIZER CALL REPORT

TO : FILE

cc D. H. Bechtold - Chicago
G. L. Judy - Chicago
F. Sturm - Atlanta
N. W. Touchette - Res. JFQ
W. F. Waychoff
R. R. Darby - Res. JFQ
W. K. Johnson - WJOHN

DATE OF CALL: December 4, 1968

FOR KIMBERLY-CLARK: Mr. LeRoy Goldbeck
Mr. Gene Condon

SUMMARY:

Since the trial at Balfour of the 75/25 DOP/Aroclor 1254 blend resulted in symptoms of vapor toxicity of the plant personnel, the use of Aroclor 1254 is temporarily abandoned. Because the Aroclor won't be used, interest is again high about the use of Santicizer 148 and possibly Santicizer 160, to be used in combination with DOP. The general subject of flame retardancy was discussed and specifically the use of Santicizer 148, Santicizer 160, chlorinated paraffins and metal salt flame retardants. Plastisol properties of Santicizer 148 were again reviewed, as well as patch testing results.

1. Aroclor Plant Trial - The plant trial at Balfour of the 3/1 DOP/Aroclor 1254 blend proceeded smoothly, producing desirable product. Every aspect of the production was satisfactory, except the ability of the ventillation system to remove the Aroclor vapors. Plant personnel experienced respiratory and eye irritation during the limited trial.

   The ventillation system of the existing equipment likely cannot be up-graded adequately to handle the Aroclor fumes. Therefore, this use is temporarily shelved. In approximately 1½ years a new production line will be constructed, which presumably will be designed to handle Aroclors.

2. Santicizer 148 skin irritation patch testing was reviewed. A complete copy of the Santicizer 148 multiple insult testing was promised for Mr. Bletzsinger. He has the report from the previous Schwartz testing we performed.

3. Santicizer 160 skin irritation patch testing was reviewed. LeRoy indicated that the reactions were so slight that he would not be concerned about trying to use it as a part of the plasticizer system. Of course, such a system would have to be patch tested.

4. Optimized plasticizer blends using Santicizer 148 for flame retardance were discussed. I suggested that they start with about a 1:1 Santicizer 148/DOP blend in their 60-70 PHR plastisol and then vary the ratio in about 4-5 PHR increments to determine ratio for optimum flame retardance. The use of Santicizer 160 in place of DOP would warrant starting with about 10% less Santicizer 148 in the blend.

5. A flame retardant additive, some metal salt, is used as a part of the plastisol. Identity of this additive was not disclosed. The comment was made that the salt is somewhat water soluble, but not of serious consequence because of the disposable nature of the product.

6. Composition of combustion vapors is of extreme concern to the US government, since one of their customers is a VA hospital. So far Kimberly-Clark has given evasive answers, but expect that soon they will have to give a definite reply. That phosgene may be present in the smoke is of concern to LeRoy.

7. Presence of Lewis Acid forming constituents was described by George Drake to be of extreme importance in developing flame retardance. George Drake addressed a recent flammability seminar in New Orleans.

8. Plastisol viscosity stability of Santicizer 148, better than Santicizer 141, is very interesting to Gene Condon. He indicated belief that the earlier use of Santicizer 141 would have led to problems because of viscosity stability in a prolonged plant run. He agreed that the use of a faster fusion system was a definite asset in the production, and that attempts to achieve faster fusion with adequate viscosity stability were desirable. Adequate viscosity stability remains unquantified.

9. Lab trials of chlorinated paraffin are being considered. Advantages such as low cost and disadvantages such as required stainless steel storage and plumbing, more loosely bound chlorine with possible skin irritation and chloracne, were discussed. Interest in chlorinated paraffins was at least dampened. The thought of loose chlorine and HCl scared LeRoy.

10. Lab trials with Santicizer 148 and with Santicizer 160 as a partial DOP replacement will begin immediately.

FORWARD PLANS

Lee, as you are well aware, these people move frustratingly slow. Unless otherwise motivated, I can foresee that LeRoy and Gene may go through a three month lab program evaluating 16 formulations and then through patch testing everything before making another plant trial.

Our objective should be that LeRoy and Gene follow a brief lab program which entails finding the best ratio of DOP/Santicizer 148/secret additive, followed by an immediate plant trial. Timing on the plant trial could be Christmas. Patch testing, which will merely confirm what is already known, would best be done on plant-produced material.

You can best pursue, with LeRoy, speeding up what could otherwise be an interminable program.

Call Follow-Up:

1. Send LeRoy information concerning identification of combustion products.

2. Forward details of repeated insult patch testing of Santicizer 148.

3. Forward reference to encyclopedia article on flame retardance.

4. Send Gene Condon articles relating to theoretical aspects of plasticization.

L. D. PRESS

LDP/cs