

46B-11.

February 15, 1965.

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Dear Brian:

Thank you for your letter of January 25th. I would entirely agree that wherever possible we should exchange ideas on any phases of our work. I regret to say though that with respect to our proposed project 3711, we have little to contribute at this time. In fact, to be quite honest, due to shortage of heads (I have been looking for a Masters or PhD to head up our Analytical Section for 8 months now) there has been no major progress in this area. The people I do have are tied up on other more immediate projects.

Project 3711 was inserted in our program because our work on HCN in smoke suggested that the Cambridge filter distinction between vapour and particulate phases of smoke might be falling down. We have found a 60 - 65% retention on our Cambridge filters. I find it hard to believe that HCN is, accordingly, primarily in the particulate phase of smoke. I have suspected that there is HCN absorption by the filter either due to deposited smoke constituents or to presence of extraneous materials (such as acrylic binder) used in the manufacture of the Cambridge filter. We have indications from a collaborative test with Louisville that our filters are different from theirs. When cigarettes were interchanged (flue-cured from I.T.Co. and blended from B & W) and smoked using the same parameters, our HCN deliveries were about 1/3 those found by Louisville. When we omitted the Cambridge filter, our respective yields were compatible!

We are trying to sort out some of these effects by examining the Cambridge filter efficiency for HCN at different puffs and by clearing up the filter via solvent extraction. The latter by the way has shown in preliminary tests only a 5% decrease in efficiency. Although we may eventually explain what is happening, the main question of how to assess the distribution of HCN and other volatiles in the smoke phases, would remain unanswered. I had pinned my hopes on the electrostatic precipitator, but I see from your recent Laboratory Report No. L-144-F that there is no difference between collection by a Cambridge filter and an electrostatic precipitator and that you are also showing high particulate phase content of HCN. Frankly, this puzzles me just as the Tennessee Eastman observation that formaldehyde is partly filtered by a Cambridge filter whereas acetaldehyde is not.

at some more experiments would be
they are appreciable greater solvent action
than the same constituents
in acetyl acetate.

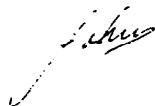
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Perhaps you already have an explanation of why some highly volatile compounds should be present in the particulate phase to such a high extent and others not. We would also like to know what is your approach in your present work on the distribution of volatiles. It could help to sort out some of our ideas.

Have you by any chance examined Sismey's charcoal treated by a simulated Keith method (letter of December 1st 1964 to Mr. H.D. Anderson)? Did he actually achieve anything other than a deactivation effect? An unchanged aldehyde efficiency was reported, but I wonder if the same was true for other vapours or whether the aldehyde retention was due only to the effect of the added ammonia and salts.

Joan and the family are well and send their regards, Hope your little ones are not keeping you too much on the hop and that you are keeping away from car accidents!

Sincerest best wishes for a happy and successful year,



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