

Project 42

April 23, 1953

Professor R. W. Schiessler
Pennsylvania State College
School of Chemistry and Physics
State College, Pennsylvania

Dear Bob:

In his letter of April 20 Les Beard probably had in mind the testing of a polycyclic aromatic as a carcinogen which requires only a fraction of a mg. of such a solute per application. However, 20 to 100 mg. of total solution, of which the accelerating solvent represents about 99.9 percent, must be applied at each application to each mouse in the tests for which we are requesting samples.

To carry out a biological test of the accelerating potency of a hydrocarbon solvent, it does require a minimum of about 25 grams. Could you indicate for me which of your samples with 12 to 25 carbon atoms are currently available in this quantity? Since a complete mouse test on such materials requires several months of work and a not inappreciable nick in our project budget, I can assure you that we shall not swamp you with requests for large numbers of samples of the 25 g. size. We should, however, like to select two or three of the list which would provide the most pertinent information, complete the tests on them, and then review the situation to see just where additional hydrocarbon types or molecular weights are then needed to round out the picture.

There are preliminary indications that there is some relation between the surface activity of hydrocarbons such as decylbenzene and their physiologic action in carcinogenesis. Have you made any measurements of the surface tension, spreading coefficients, or other indications of surface activity of your collection of hydrocarbon samples. If we can carry this correlation far enough, we may eventually be able to estimate the accelerating potency of samples of

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relatively small size simply on the basis of their surface activity as measured perhaps, by their spreading coefficients on water or triglycerides.

Sincerely yours,

A. Wesley Horton

AWH:mjg

CC: Dr. L. C. Beard, Jr.
Dr. R. C. Mithoff
Dr. L. M. Henderson
Dr. J. H. Ramser
Dr. R. F. Marschner

