

MONSANTO CHEMICAL COMPANY
PHOSPHATE DIVISION, SALES DEPARTMENT

June 29, 1953

TO: ALL PHOSPHATE DIVISION SALESMEN

SUBJECT: AROCLOR--EXTREME PRESSURE LUBRICATING ADDITIVE FOR GREASES
AND GEAR OILS

A. TOXICOLOGY.

Active interest has developed on the part of practically all major oil companies in the use of Aroclor, especially Aroclor 1260, as an additive to extreme pressure lubricating agents such as greases and gear oils used on farm machinery and in livestock feed-processing machines, such as the pelletizing equipment, etc.

In the past, chlorinated naphthalene (Halowax) has been used in these gear oil lubricants and greases, but, unfortunately, this specific additive has caused "X"-disease, Hyperkeratosis, in cattle.

Thousands of steers have been diseased and according to the newspapers the losses run into millions of dollars. A typical excerpt taken from such a news item is quoted as follows:

"Because highly chlorinated naphthalene has been a common ingredient in petroleum products, cattle have been poisoned by merely rubbing against oily tractors, combines, bulldozers, etc. Cattle food pellets made with machinery where the gears were lubricated with oil containing Halowax have been a principal source of the harmful agent."

To give you further background on the status of chlorinated naphthalene, we are attaching a copy of an article from the Bureau of Animal Industry in Washington. As you will note, this information has been submitted to the cooperators in the bovine Hyperkeratosis or "X"-disease of cattle research program. However, the Bureau of Animal Industry has not published this work but the results have been given to us providing that we do not use the information in publications, advertising releases, or promotional material. We are passing this information along to you so that you can have an opportunity for a better understanding of the problem.

Also attached, and strictly for your own information about the status of Aroclors in connection with this project, is a report entitled,

"Hyperkeratosis Investigations, Georgia Coastal Plain Experiment Station and United States Bureau of Animal Industry Cooperating, August-December, 1952".

Subsequent to finding that chlorinated naphthalene causes Hyperkeratosis in cattle, extensive testing of compounds that might be used in oil and greases, including Aroclors, has been carried out at various universities and governmental agencies. All of this work has been coordinated at the Bureau of Animal Industry, Agricultural Research Administration, United States Department of Agriculture, Washington, D.C. Dr. A. M. Lee of this agency has been appointed national coordinator of "X"-disease research. We have been in close contact with Dr. Lee and also with Mr. B. T. Simms, Chief of the Bureau of Animal Industry.

Our medical people asked these gentlemen for an official statement which might clarify the situation and make a matter of record their and our conclusions relative to the use of Aroclor for the subject purpose. In a letter of June 4, 1953, Mr. Simms authorized us to quote the following statement to medical and technical directors of oil and grease companies:

"The Chief of the Bureau of Animal Industry states, on the basis of present knowledge, that the proper use of greases which do not contain highly chlorinated naphthalenes have not been a factor in the production of "X"-disease of cattle from pelleted feeds."

This statement is clearly negative for the use of chlorinated naphthalene but, on the other hand, it is only an implied positive statement for other materials--including Aroclor. Mr. Simms has explained this by pointing out that the approval by the Bureau of any specific compounds for use as an extreme pressure lubricant for lubricating pelleting machines might be misinterpreted by livestock feed manufacturers and cattle owners as an endorsement by the Bureau for the consumption of such lubricating greases or oils by cattle. In other words, it would be unreasonable to expect the Bureau to endorse Aroclor or any other E.F. lubricating agent which may be regarded as being safe or relatively safe for the subject purpose as such endorsement would easily lead to complications relative to the position of competitive manufacturers of such agents.

On the other hand, the Bureau does not want to injure the livestock pelleting feed industry or retard the use and sale of pellets which are considered necessary to the present-day livestock production. We believe that you will agree that this is a very fair and commendable action on the part of the Bureau.

Strictly for your own information and, again, not to be released officially until the results of the animal experimentation have been published, we feel at liberty to mention to you that Mr. Simms has told us in a telephone conversation that such high doses of Aroclors have been given to cattle without producing symptoms of "X"-disease, that all investigation of these compounds as a possible causative agent has been discontinued.

It is our suggestion that oil companies interested in the use of Aroclor for the subject purpose and seeking clarification on the status of Aroclor for this use, should write to Mr. Simms--or preferably to Dr. A. M. Lee, National Coordinator X-disease Research, Pathological Division, United States Department of Agriculture, Agricultural Research Administration, Bureau of Animal Industry, Washington 25, D.C.

B. PATENT SITUATION.

In this subject application--namely, the use of Aroclor as an E.P. lubricant for gear oils and greases, it is recalled that several of you have hesitated in the promotion of Aroclor sales because of fear or lack of understanding about possible patent violation, no doubt, particularly with reference to Lubrizol patents. Specifically, several times you indicated to us that to your knowledge immunity was indicated by the manufacturers of chlorinated naphthalene relative to the use of that E.P. additive. We have been asked, "How can we expect to sell Aroclor unless we do the same thing?" If this question arises in your contacts with the oil companies, we do not think that you should tell any customers that we will guarantee them immunity against patent infringement, because, as outlined below, the situation is such that we don't regard it as being necessary.

If you are forced to do something along this line by a prospect, please, refer it to us so that our patent people can prepare a carefully worded document and be sure that it will extend only to the use of Aroclor broadly in gear lubricants and not include specific improvement patents if there are any.

In general, if a potential customer raises a question as to the patent situation, please, tell them that expired U. S. Patent 1,986,651 disclosed and claimed the use of chlorinated biphenyl in lubricating compositions. Also, expired U.S. Patent 1,986,645 disclosed and claimed the process of reducing friction between relatively moving metallic parts involving a film of lubricating oil and chlorinated biphenyl. In addition to the two foregoing expired patents, we are also acquainted with U. S. Patent 2,051,744 which expires August 16, 1953. Since this patent expires in about a month, and in view of the two patents referred to above which have already expired, no doubt, you will find your customers unconcerned about the patent situation.

It is indicated that practically all of the major oil companies are interested in the subject possible use of Aroclor and, in fact, one or two of them recently began to purchase in substantial quantities along this line. Realizing that you are anxious to call on the oil companies in your territory, we have given you this information as completely as it is possible to do at this time in order that you will have an understanding of the project and in hope that you will discuss it accordingly with the technical people and the medical people in these organizations.

Please let us help you with this as we are anxious to take advantage of this potentially relatively large outlet for our Aroclors.

Thank you.

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P. G. Benignus