April 15, 1957

Dr. P. S. Nisson
Pure Oil Company
35 East Wacker Drive
Chicago, Illinois

Dear Doctor Nisson:

Mr. R. L. May has asked me to send you toxicity data on several of our products including specifically Hydraul AC and Santopoid 22-RI. Also Mr. May indicated that you would like a statement regarding our class of compounds known as Arocolors.

Hydraul AC

Animal investigation studies with this fluid indicate that the oral lethal dose for rats is approximately 40 grams per kilogram of body weight. The minimum lethal dose by skin absorption in rabbits is 4.0 to 5.0 grams per kilogram. As with many industrial chemicals, rabbits are apparently more sensitive to the product than are rats. On the other hand, we conclude that this lethal dose following absorption is such that there should be no acute hazard to humans following massive skin contacts with the fluid.

Standard rabbit skin and eye irritation studies indicate that undiluted Hydraul AC is not an irritant. We do know that in the case of humans, accidental contact with the eyes will result in moderately severe pain and irritation, about the same degree as might be expected if there was similar contact with kerosene. Animal data and human experience indicate that the accidental eye contact will not result in any permanent damage to eye tissues.

In acute inhalation studies, rats survived a six-hour exposure to an atmosphere saturated with vapors of the fluid.

Santopoid 22-RI

The oral lethal dose in rats is approximately 2.9 grams per kilogram. When applied undiluted to the skin of rabbits, the animals survived dosages up to 8.8 grams per kilogram. Routine skin and eye irritation studies in animals indicated

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that Santopoid 22-RI may cause skin irritation if there is prolonged contact with the skin. We recommend that prolonged or repeated skin contact be avoided. In regard to eye irritation studies, the effect on rabbits appeared to be slightly more pronounced irritation than would be experienced with a 10% soap solution tested similarly.

Aroclors

We have considerable data and experience with the chlorinated diphenyls and terphenyls identified as Aroclors. This can not be summarized briefly without knowledge of the specific compounds of interest. In general it may be stated that in normal handling and use a few simple precautions will avoid any toxicity hazards. Briefly, the precautions require the avoidance of repeated or prolonged skin contact and inhalation of vapors should the Aroclors be heated to temperatures where volatilization may occur.

Mr. Moy indicated further that your principal concern with the products discussed above might be related to their use (or misuse) and the occurrence of X disease or hyperkeratosis in cattle. We can state unequivocally that there is no evidence of any relationship.

Earlier reports of the association between chlorinated naphthalenes and X disease suggested the question that chlorinated biphenyls (Aroclors) and chlorinated phenols might be causative agents. There are statements in the technical literature and letters in our files from the United States Department of Agriculture which exonerated products of our manufacture. The Government and university laboratories' investigations with all types of chlorinated materials which could possibly reach cattle indicated that chlorinated naphthalenes (of the higher degrees of chlorination) were the only recognized materials responsible for the X disease experienced.

If I can be of any further assistance, please let me know.

Sincerely yours,

Elmer P. Wheeler
Assistant Director
Medical Department

EPW:dh

cc Mr. R. L. Moy

F. M. Luckett/R. D. Fuhrhop
J. W. Newcombe-Roberts Building