

January 29, 1943

Delivered to
Republic
66-835
Off

Dr. F. B. Thole,
Technical Adviser to the
Office of the British Petroleum Representative,
Commerce Building,
Washington, D. C.

Dear Dr. Thole:

Pursuant to our telephone conversation of this morning, I send you herewith a memorandum on the matter that we discussed briefly. I shall appreciate greatly any assistance you can give me in getting at this problem.

Very truly yours,

Robert A. Kehoe, M. D.

RAK ef

Enc.

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MEMORANDUM ON THE SITUATION IN CERTAIN AREAS
OUTSIDE THE U.S.A. WITH RESPECT TO SUPPLIES OF NON-LEADED GASOLINE

Recently, cablegrams were exchanged between Ray Bevan, of Associated Ethyl Company, Ltd., of London, connected with the British Ministry of Fuel, and John Schaefer of the Ethyl Corporation, (U.S.A.) New York, concerning the probable non-availability of gasoline free of tetraethyl lead in certain areas supplied from the United States. Technical information was cabled by Schaefer giving certain procedures for removing the lead from the gasoline - one by distillation and another by filtration through an adsorbing medium. The opinion of the undersigned was sought concerning the significance of the potential hazards associated with the use of leaded gasoline for cooking and heating and in blow torches. On the basis of adequate experimental evidence, the opinion was given in a cable as follows:

January 14, 1943
7:00 PM

"Ray Bevan
Associated Ethyl
London England

Use of leaded gasoline in blow torches stoves and lamps within rooms or enclosed spaces is definitely dangerous for more than short periods in emergency because of air contamination stop Contact of food with flame or free fume in oven gives further significant contamination stop Unless means for removal of lead from fuel or within combustion equipment is provided, now leaded fuel imperative for general regular use

Robert Kehoe
Kettering Laboratory
Cincinnati Ohio"

Some days later a message was received from the British Consul in Detroit, as follows:

January 23, 1943

"As British Consul for the States of Michigan and Ohio, I have received an official telegram from London from a Mr. Bevan of the Associated Ethyl Company who is, I gather, connected with the Ministry of Fuel.

"The telegram expresses:

1. Thanks for your cable of January 14th and for the details you sent then. Mr. Bevan goes on to state that only lead gasoline will be available in future in certain countries unless special arrangements are made to provide supplies of unleaded gasoline for heating, lighting, and conveying, etc.

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2. He expresses the opinion that it will not be easy to make provision for suitable quantities of unleaded material because of the transportation and storage difficulties caused by present situation.

3. Because of the statements contained in paragraphs numbered 1 and 2. Mr. Bevan asks that you discuss this problem on his behalf with those American companies who are taking part in the export markets concerned particularly Socony, Caltex, and Standard Vacuum. He also asks that you be kind enough to arrange for them to issue such instructions to their field staff as you may agree with them notifying him of the action taken.

4. He goes on to say that the use of leaded gasoline by armed forces for conveying purposes also presents a problem which must be dealt with promptly, and he is sure that you will appreciate that under certain conditions of field operation it may be impossible to maintain a special supply of unleaded gasoline for conveying purposes. He doubts whether the filtration method outlined in Mr. Schaefer's cable to him of January 12th will do much to overcome this difficulty as it is, according to him, obviously impossible to consider heating of adsorbent relates under proper conditions of use or to guarantee that adequate supplies of adsorbent will be available to obtain required quantities of unleaded fuel at the right time and place (I hope that this last sentence will be clear to you but the telegram was mutilated and very difficult to decypher).

5. Mr. Bevan would appreciate you informing him what instructions, if any, have been issued by your own authorities to the U. S. Forces on this matter since they are unobtainable from U. S. sources in London.

6. London is anxious to inform the British authorities regarding precautions which should be taken and they believe a second practice is desirable.

7. He considers it important that the position should be clarified and proper instructions issued at the earliest possible date and he would, therefore, appreciate hearing from you regarding this aspect of the situation as soon as possible.

8. He requests that you reply through me.

That is the entire message and as I found that you were in New York after having telephoned Cincinnati, I have taken the liberty of sending this to you. I shall be most grateful if you will forward to me your reply at this address:

KE 0007204

Phone -
 Randolph 4776,
 4777, 4778

Cyril H. Cane, Esq.,
 H. B. M. Consul,
 British Consulate,
 1574 National Bank Bldg.,
 Detroit, Michigan.

"I shall, of course, transmit it at once by telegram to Mr. Bevan.

Yours very truly,

Cyril H. Cane
 H.B.M. Consul"

It seemed inadvisable to deal directly with the suppliers mentioned in Mr. Bevan's message as transmitted, without first consulting those responsible for the administration of the fuel distribution. Accordingly, advice and assistance are requested in the matter of procedure. In any action that is to be taken the following facts should be considered:

(1) The combustion of leaded gasoline in stoves, lamps, and blow torches that are not specially designed for this fuel, results in the distribution of finely divided lead compounds into the effluent air from the burners and in the deposition of lead compounds in various parts of the burner. The former factor may result in dangerous contamination of the air breathed by human beings under suitable conditions, and the latter factor will interfere with proper operation of the equipment by plugging its orifices. In addition the deposit of lead compounds in food exposed to the free flame may be expected to be significant, while contamination of the under surfaces of cooking utensils will almost certainly cause some indirect contamination of the food.

(2) Provision has been made for the use of leaded gasoline in stoves employed for cooking by the armed forces of this country (U.S.A.), in that burners of special design containing filters are employed. A great deal of experimental work has been done and is being done to perfect these stoves, but it is hardly probable that this equipment could be supplied so as to solve this problem in other countries.

(3) Equipment and materials for the removal of lead from gasoline in preparation for its use as fuel for stoves, etc. will probably not be available.

(4) Instructions for the avoidance of danger from the use of leaded fuel will be of little avail, unless provision can be made for ventilation or other suitable precautionary measures.

(5) The only practical means of avoiding these dangers would appear to lie in arrangements for supplying lead free fuel for both military and civilian use in stoves, lamps, and blow torches; so far as this can be done.

With these facts in mind, it seems desirable to know the general type of program that has been adopted for supplying gasoline, to consider what changes, if any, could be made to meet this problem, and then to deal with the suppliers and through them, to issue such instruction as may be pertinent and useful.

Signed

Robert A. Kehoe, M. D., Director,
Kettering Laboratory of Applied
Physiology, College of Medicine,
University of Cincinnati.
(Also Medical Consultant to
The Ethyl Corporation and
The Associated Ethyl Co., Ltd.)

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