

March 13, 1956

Dr. Charles H. Daffin  
536 East Fourth Street  
Panama City, Florida

Dear Doctor Daffin:

Your letter of March 3 raises questions which cannot be answered with absolute certainty. However, an answer can be given in such a way as to deal satisfactorily with all but the most unusual cases.

In general, exposure to gasoline vapors in high concentration is serious as to life, since the hydrocarbons induce narcosis promptly when in sufficient concentration (I don't know just what you mean by 100% concentration, but I must assume that you mean a high concentration. Your patient must not have been trapped for if he had been, he might easily have lost his life), and unless one escapes before unconsciousness ensues, or unless he is removed and resuscitated promptly, he does not resume breathing. On the other hand, resuscitation is followed generally by complete recovery in a fairly short time. The outcome depends, to a considerable extent, upon the composition of the gasoline, however. The higher the concentration of aromatic hydrocarbons, the more likely one is to have a more prolonged illness. You will recognize, I believe, that modern gasoline is quite a mixture or special blend of petroleum products, and therefore it is hard to anticipate all of its effects.

In general I should not expect even severe exposure to gasoline vapors for a few minutes to result in clinically demonstrable damage to the liver. I do not say that it is not possible, but it is unlikely. One wonders, therefore, whether your patient was not ill or in the clutches of an illness (one of the forms of clinical hepatitis which occur not infrequently) at the time of his exposure to gasoline. It is not quite the same thing, but one does not expect severe damage to the liver to occur as the consequence of even quite an alcoholic binge. No more would I expect it in connection with the exposure to gasoline which you have described (too briefly to enable one to estimate its severity). Certainly chloroform induces severe liver damage with much greater ease and frequency than do the petroleum hydrocarbons, but only rarely does it, when used briefly, cause persistent hepatitis or hepatosis. (I am speaking here of a time when chloroform was used frequently, for the prompt and brief induction of anesthesia.)

copy

Dr. Charles H. Daffin - (2) - March 13, 1956

If I were responsible for your patient, I would wish to make sure whether or not he now has some persistent form of liver damage or disease. If he does not have evidence of such disease, I would consider carefully whether he may have had an attack of hepatic disease of a type that may recur. If, however, the history and the sequence of events in his illness was such that the hepatic injury seems almost certainly to have stemmed from his experience with gasoline, I would tell him to forget about the likelihood of further trouble from that cause. The type of injury that might occur from that cause should be completely reversible and without sequel.

I should be interested to know how your patient gets along in the near future, and if you would care to write to me further, I should be pleased.

I am sending you an article on the subject of gasoline intoxication written by one of my former associates, which covers the subject fairly well. One must recognize that aviation gasoline varies from time to time and from one refiner to another, and that we may not have seen all of the possible effects of all of the mixtures of petroleum hydrocarbons which are now in use. What I have said fits into our experience over quite a period of years, however, and represents the best information I can give you.

Cordially yours,

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Robert A. Kehoe, M. D.

RAK:ef

Enc.

KE 0012702

CHARLES H. DAFFIN, M. D.  
536 EAST FOURTH STREET  
PANAMA CITY, FLORIDA

3 March 1956

Dr. Robert A. Kehoe  
Director of Medical Department Ethyl Corporation  
University of Cincinnati College of Medicine  
Cincinnati 19, Ohio.

Dear Dr. Kehoe:

I have a patient who works with aviation gasoline and he was recently subjected to approximately 100% concentration for a few minutes. He was made quite ill for the next few minutes and felt rocky (as he says it) for the rest of the day. The next few weeks he lost his appetite, felt bad, lost thirty (30#) pounds weight. Relatedly he sought medical advice and was found to have non-icteric hepatitis. He was sent to Mayo Clinic and now has returned to work. He asked me to write you concerning the toxic effects of high octane gasoline, the duration of any possible damage, and a proper management of toxic effects if obtained.

He had written somewhere for this information and had a letter which stated that if his doctor would write you that the information would be sent to the patient's family physician.

Hoping to hear from you in the near future, I am,

sincerely yours,

  
CHARLES H. DAFFIN, M. D.

CHD:dd

KE 0012703

N13236.01

February 17, 1956

Mr. [REDACTED]  
314 Bunkers Cove Rd.  
Panama City, Florida

Dear Mr. [REDACTED]

This is in reference to your letter dated February 15, 1956 in which you requested information concerning the toxicity hazards of aviation gasoline. A section entitled "Health Hazards of Aviation Fuels" is included on Page 9 of the booklet, "Aviation Fuels and Their Effects on Engine Performance", copy of which is being forwarded to you under separate cover. This is in no sense intended as a medical treatise on the subject.

I have discussed your letter with Dr. C. J. Sprunk of our Detroit Medical Department and at his suggestion we are forwarding it to Dr. Robert A. Kehoe who is Head of the Medical Department of the Ethyl Corporation and will take such action as he deems desirable. It is possible that he would feel more inclined to discuss this case directly with your doctor and it is suggested that your physician contact Dr. Kehoe whose address is:

Dr. Robert A. Kehoe  
College of Medicine  
University of Cincinnati  
Cincinnati 19, Ohio

Yours very truly,

ORIGINAL SIGNED BY:  
ROBERT V. KERLEY

Robert V. Kerley, Director  
Products Application Division

RVK:rel

cc: Dr. R. A. Kehoe  
Dr. C. J. Sprunk  
Central File

KE 0012704

N13236.02

Mayo Clinic  
Rochester, Minn.

Feb. 15, 1956

RECEIVED

FEB 16 1956

Mr. R. V. Kerley, Jr.  
Aircraft Research Division  
Ethyl Corp. Lab.  
Detroit, Michigan

Per: \_\_\_\_\_

Dear Mr. Kerley;

Your name has been suggested to me in my search for specific information concerning high-octane gasoline.

I am employed by the Aerojet-General Corp, as a research engineer at Panama City, Florida. In my work there I have been exposed to, and breathed heavy concentrations of gasoline, octane rating 115 to 140. Recently, due to rapid loss of weight and abnormal liver-function blood tests, I have been hospitalized at the Mayo Clinic. My local physician is of the opinion that high octane fumes can cause liver disease.

It is necessary that I follow up this lead, not only for my own benefit, but that of my co-workers.

Would you please give me the information you might have on this subject, or, lacking definite information, some idea of the additives which are used in making high octane gasoline for aviation purposes.

Since no real diagnosis has been reached

KE 0012705

N13236.03

ere, I am returning home. Please ~~write~~  
on this subject to me at: 314 Bunkers Cove Rd,  
City, Florida.

Sincerely yours,  


KE 0012706