

ETHYL CORPORATION

INTER-OFFICE CORRESPONDENCE

TO Dr. R. A. Kehoe ADDRESS Cincinnati

FROM Mr. O. B. Lewis ADDRESS New York

SUBJECT Accident DATE September 27, 1946
Scientific Products, Inc.
Beacon Falls, Connecticut

On March 2, 1946, Dr. [REDACTED], Chemical Director of Scientific Products, Inc., Beacon Falls, Connecticut, wrote requesting 25 pounds of pure tetraethyl lead.

Mr. J. T. Beckwith, our Safety Engineer, made an investigation of this request on March 27. His report indicates that this is a substantial concern staffed by at least several men with PhD degrees. They wished to manufacture pharmaceutical compounds for cancer or tissue work. Dr. [REDACTED] stated that he had made himself about 20 pounds of TEL but needed about 100 pounds a month.

A laboratory hood had been ordered. Unopened cans of TEL were to be stored in a separate room with other chemicals until some time later when a small concrete building was to be built for storing drugs and chemicals. Rubber gloves were available, and rubber aprons assured.

Despite the apparent expertness of the staff, Ethyl's Safety Department was uneasy over the large quantities involved in an unknown (to us) process; therefore, our Mr. Ben Crane accompanied Mr. Beckwith on a second trip to examine more closely the details of the operation. The process was reported as follows:

"The reaction chamber will be placed under a fume hood which is well ventilated. All joints connecting flasks to the reaction apparatus will be mercury sealed, except the upper condenser joint which will be connected to the exhaust chamber of the fume hood.

"TEL and mercury bichloride are reacted in ethyl acetate solution in which the ratio of solids to liquids is 10 to 1. The reaction will be complete on the TEL. At completion of primary reaction of mercury and lead, acetic acid is added to complete ethyl mercuric acetate cycle. After this excess acetic acid is exactly neutralized with decinormal alcoholic caustic soda. The resulting product is washed on the filter by suction.

KE 0009862

September 27, 1946

"The ethyl mercuric acetate is isolated in the usual manner. The solid residue which will consist of lead chloride with traces of lead acetate, if reasonably pure, will be salvaged for use in other manufacturing processes, or otherwise properly burned on the premises in a private incinerator.

"The ethyl mercuric acetate is the primary reagent sought for, and will be used for further processing with proteins to arrive at a chemotherapeutic agent.

"Dr. [REDACTED] is willing to submit samples of the ethyl mercuric acetate to Dr. Kehoe for analysis."

We wrote Dr. Kehoe on May 7 that in accordance with his telephone conversation with Rus Schell we were releasing the initial shipment, 25 pounds of pure TEL.

On August 13 Dr. [REDACTED] called me. He stated that some of his men had been badly burned, and requested medical assistance. We referred him to Dr. Machle who handled the medical aspects. Our Safety Engineer, Art Roberts, helped to clean up their laboratory of material that might have offered further hazard. I believe that Dr. [REDACTED] Mr. [REDACTED], and Mr. [REDACTED] were the men injured. Doubtless Dr. Machle's report will give the details along this line.

The almost tragic accident appears an excellent example of the inherent dangers in our product and the diligence necessary if many more accidents of this kind are to be prevented.

Yours very truly,



O. B. LEWIS

W:T

KE 0009863

PROGRESS NOTE

23rd August, 1946

Entered hospital on the 13th August, 1946 for care of fingers (hospital chart attached). Dead skin denuded on 13th & 14th August, 1946 leaving raw, bleeding surface. Slept well for about two hours per night, then awakened. No benefit from 4.5 gr. nembutal plus 0.5 gr. codeine subcutaneous. Very restless. Sweats and chills irregularly - often at 0100, lasting about half an hour with copious sweating. Since 22nd & 23rd August, there has been continuous nausea. Appetite fairly good till 22nd, marked anorexia past two days. Pain in loins first noted 18th about 0400, recurred in bouts q.d. with burning micturition at. Kidney pain has been lancinating. Headaches unchanged since onset. P.I. beginning with frontal stabbing pain then deep throbbing lasting 1 - 3 hours. Has been drinking 2 quarts milk daily. Bowels 2 - 3 x daily. Few shooting pains right hand - beginning in injured finger - numbness and tingling, troublesome in all fingers.

EXAMINATION

Blood Pressure 120/75 T. 98.9 Pulse 90 Respiration 18

Finger epithelialized well except right index which has several necrotic sloughs and infected granulated surface 2 x 5 cm. on neutral aspect. Blood samples taken - spot urine.

Urinalysis Albumen - negative Sugar - Negative PH 4.5 Microscopic - Negative

IMPRESSION

There are four possibilities under consideration.

- a. Delayed encephalopathy from mercury.
- b. Nephritis from mercury salts.
- c. Absorption of bacterial products from infected skin.
- d. Intercurrent infection.

The blood pressure and temperature record is not remarkable except the elevation of diastolic pressure on 21st August. Our findings on 23rd August, together with urinalysis and normal output would exclude nephritis. The impression is that the symptoms resulted from absorption from infected areas on the hands.

Name: [REDACTED] Scientific Products Co.
Material: Blood and Urine
Submitted: 8-27-46 by Dr. Willard Machle, 610 Park Ave., New York,
New York
Required: Lead and Mercury Determinations

Results

Urine

Analysis Number = 46A-4176
Lead = 0.10 mg./Liter
Mercury = 0.04 mg./Liter

Blood

Analysis Number = 46A-4177
Lead = 0.05 mg./100 g.
Mercury = Nil

Note: One blood sample (21.6 grams) was submitted. The sample was wet
ashed and one-fifth and four-fifths aliquots were analyzed
for lead and mercury respectively. The quantity of blood thus
used was insufficient to pick up trace of mercury (< 0.005 mg./
100 g.).

Reported: 8-31-46

KE 0009865