

Reprints: 1 Behavior of Mercury in the Animal Organism following inhalation
2 Synthesis of Di-beta naphthylthiocarbazon and some of its Analogs
3 Determination of Mercury in Urine

June 29, 1962

Mr. H. W. Speicher, Administrator
Industrial Hygiene
Westinghouse Electric Corporation
East Pittsburgh, Pa.

Dear Mr. Speicher:

With respect to the occupational (or other) hazard of the absorption of mercury through the skin, under ordinary conditions, you can dismiss the matter as of no practical consequence. I can imagine conditions under which the contribution by percutaneous absorption to the total quantity absorbed would be significant (as for example the practically continuous contact of the skin with a heavy grease base in which finely divided metallic mercury is dispersed) in appreciable concentrations (from 1 or 2 per cent. upward). However, the incidental contact of the skin of the fingers and hands with metallic mercury, by itself, is of no significance, in itself, and is ^{of} absurdly minute importance in relation to the inhalation of mercury vapor. (I am sure you are aware that mercury has a highly significant vapor pressure at ordinary temperatures). Such inhalation occurs to an important extent in a variety of industrial and professional (diagnostic laboratories) situations. It is not too easy to maintain the atmosphere of laboratories and chemical work rooms well within the proper specifications. It can be done, but it is not always done. I have seen many times the tolerable level in a variety of places. The air should not be permitted to contain more than 0.1 mg. Hg. per cubic meter at any time, in view of the serious character of chronic mercurialism, but in our experience, this standard is sufficient to maintain freedom from hazard. There will be an highly significant absorption of mercury at or near this threshold level of concentration. The relative rate of the absorption is indicated by the rate of the excretion of mercury in the urine, and when it is not in excess of 0.20 mg. $\pm$ 0.06 of Hg. per liter of urine (in an individual who has no renal damage) the hazard is insignificant. You are right in believing that the ingestion of mercury may be a problem, but it is usually of minor significance.

The method of analysis which we use in this laboratory, after its development here, is described in the attached reprint. I send you also a reprint of an article on some experimental work done here which will, I think, be of interest to you. The cost per analysis of carrying out this procedure is \$12.50.

Sincerely yours,

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