

May 5, 1948

Mr. Paul G. Brown, Industrial Hygiene Engineer,
Division of Industrial Hygiene,
808 North Spring St., Suite 806,
Los Angeles 12, California.

Dear Mr. Brown:

I realize the problem with which the industrial hygiene engineer is faced, in connection with the data and standards available with respect to the maximum allowable concentrations of a series of chemicals. I could wish that this problem could be made much simpler. Actually I have very little hope that this can be accomplished within any reasonable period of time. At present we are taking the available standards much too seriously, since, with a number of notable exceptions, the standards now fairly generally adopted are merely working standards and cannot be accepted as based upon adequate experimental evidence. To a very considerable degree they have been picked out by rule of thumb. Those that are based on adequate animal experimentation have rarely been verified by adequate clinical information. This does not mean that they should be thrown overboard, but it does mean that when they are put into use they should be examined critically and tested by proper clinical study of industrial populations. This creates difficulties, but it is an absolutely unavoidable situation, and there is no point in trying to get around it. It is better to face the facts and to recognize that in the large percentage of cases, the facts with reference to these standards are yet to be substantiated by suitable means.

Since the above is the case, we are being just a little bit precious in entering into discussions of whether they relate to a specific term of hours and what are the upper limits of variability which should be permitted in arriving at an average figure. Only physical considerations and clinical information will provide an interpretation of the effects of brief exposure to somewhat elevated concentrations. Certainly in some instances fifteen minutes of exposure to a relatively high concentration is more significant than a day's exposure to a considerably lower concentration. Thus the toxicologic behavior of a given material has to be understood, if one is to understand your question No. 2. It would be much more convenient if this were not the case, but that is the reason that industrial hygiene should be entrusted in the hands of informed persons rather than to anyone who has some engineering knowledge.

Your question No. 3 also raises a somewhat complicated problem. Obviously toxic and irritant properties cannot be completely separated, since in a number of instances, they are one and the same thing, as, for example, the acid gases, within certain limits of concentration. In the final analysis one's attitude here is dependent

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upon his point of view. Generally speaking, working conditions have to be reasonably comfortable, or men will not work contentedly within them. Therefore, we shall have to achieve a modicum of physical comfort regardless of any other factor. Frankly I am not much troubled about chemical agents that provide discomfort at concentrations lower than those that present serious toxic hazards. I am greatly concerned about those that are toxic and not unpleasant. Certainly we have to have comfort in the industrial environment, but when that is not enough, we find ourselves dealing with insidious hazards that are likely to be inadequately controlled.

In reply to the final paragraph of your letter I should like to repeat what I said above, and to call attention to the fact that it is necessary for the industrial hygienist, in his professional capacity to be so well informed that he can exercise competent judgment. If he does not have such competence, with respect to a given situation, he should know where to go to get the information he requires.

This may not be a wholly satisfactory answer to your letter, but it is the best I can give you.

Cordially yours,

Robert A. Kehoe, M. D.

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