

Goodrich

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The BFGoodrich Company
Chemical Group
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September 10, 1980

Dr. Marc Lappe
Hazard Alert System
Department of Health Services
2151 Berkeley Way
Berkeley, CA 94704

Dear Dr. Lappe:

The BFGoodrich Company is a major manufacturer of PVC and CPVC piping materials. For more than twenty years, this Company and the industry have initiated and supported efforts to assure the safe use of these products. These efforts have included research dealing with product safety, the publication of appropriate product literature, and an unprecedented level of cooperation with standard setting groups such as the National Sanitation Foundation. In keeping with our continuing efforts to evaluate the safety of our products and their uses, I am submitting the following comments on the Summary Report of Major Findings of California Pipe Trades Council Health Survey, July 1980. *AN*

1. One of the major flaws in the survey is that there is no control (non-exposure) group. Without a control, a study is meaningless. *806*
2. Another major weakness of this survey is that it lacks objectivity, particularly because it is not based on actual medical records.
3. The report does not identify the total cohort to which a questionnaire was sent. Therefore, it is impossible to determine what portion the 10,200 analyzed questionnaires represents.
4. The report states (page 4) that 6,508 responses were omitted because they did not complete the questionnaire. While it is understandable that complete cooperation cannot be expected, this does not mean that this group is not important to the study. The study also states (p. 4) that over 80% of non-respondents that were contacted did not respond because they no longer were working in the pipe trade. Again, this does not mean that their lack of inclusion in the study is not important; in fact, they are very important.
5. The report (page 5) defines the high and low exposure cases on the basis of duration of work. This use of the terms "high" and "low" are not appropriate since they denote high/low levels of unspecified agents and since duration of employment is not equivalent to level (high or low) of exposure. Secondly, there is no data available

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which indicates that exposure to "plastic" related chemicals are above levels that are harmful. In fact, studies reported by HALTS indicate that exposure to certain solvents used in solvent cements are well below the OSHA and ACGIH TLV's based on time-weighted averages. A more appropriate category is "long and short duration of employment".

6. The Union report (page 5) states that welders were excluded from this survey in order to eliminate another variable which might produce health effects. It is interesting that while the Union is concerned about potential health effects that might result from plastics use, it seems less concerned about potential health hazards to its members who also weld. Further, if the Union is interested in singling out "plastics", an objective study based on actual medical records should be conducted and should separate those people who are exposed to potential hazard from metal pipe use. Any study of this nature should identify and separate those who were involved with metal pipe use, and it should detail the kinds of pipe and what types of joints (e.g. soldering, brazing, pouring hot lead, gas welding, electric welding). It is difficult to find the merit, that the Union apparently sees, in identifying "plastics" as "the" hazard.
7. On page 5, it is stated that an effort to establish reliability and validity of the data was made by telephone interviews with a number of non-respondents. It is difficult to see how this addresses reliability and validity since it does not include any objective base such as medical records. Furthermore, the report does not state how many telephone interviews were conducted (i.e., were 6 eligible cases found out of 10 calls, 6 out of 100, etc.).
8. The report states that "trained telephone survey interviewers" were used. However, it does not indicate the nature of this training. This is important since the interviewer, in addition to the questionnaire, can bias the response.
9. On pages 6 and 7, the report suggests the use of this survey for a case controlled analysis. Because of the numerous flaws in this survey, there is no way that this study is now or will be of any use in studying potential occupationally-related health effects.
10. On page 10, the report implicates butadiene-styrene and PVC with induction of malignancies of the lymph system. It should be noted that the referenced NIOSH survey found an excessive number of leukemias but determined that they were not statistically different from the control population. Secondly, PVC has never been shown to cause cancer of the lymph system.
11. On page 13, the report states that many of the chemicals used in plastic pipe fabrication are proven or suspected carcinogens. This statement is false. It is not referenced nor can it be.
12. The results reported on pages 7 through 11 note many effects which are suggested to be due to chemicals used in plastic fabrication. Again, we emphasize that without a control, it is impossible to

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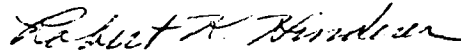
determine whether these are above the normal range. Also, the HALTS data does not indicate that exposure levels in the workplace are even close to a level which could produce an effect.

13. There is no attempt in this study to adjust the data for the effects of age, smoking, or drinking. Figure 1 is a prime example of this. Muscle weakness is a general symptom and can be caused by certain chemicals or by aging.
14. It is difficult to understand why the Union has used such a subjective approach when every suggested effect except sleepiness can be measured by common diagnostic techniques.
15. It is interesting to note that the report states that there is no effect of smoking noted. Since the effects of smoking are so dramatic, every study shows this effect. The absence of any smoking effect further serves to emphasize the inability of such a survey to identify major or minor compound-related effects and clearly shows that the survey is suspect as a tool in the investigation of occupationally-related diseases.

I believe that properly conducted epidemiology studies can play an important role in providing a low-risk environment. However, inadequate and ill-conceived studies such as this one do not serve the interest of either the public or the workers. In fact, such surveys are more inclined to disservice, since they can unduly alarm the workers and the public, erroneously direct research efforts, and can potentially result in unwarranted regulation causing unnecessary expenditure of resources.

Sincerely,

BFGOODRICH CHEMICAL GROUP



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