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AN7784

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Naresh Patel
Industrial Polychemical Service
P. O. Box 471
Gardena, CA 90247

Dear Naresh:

Although there are many questionable items in "Health Hazards Associated with the Use of Plastic Pipe--Interim Report", time limitations dictate that I only address the most obvious ones.

1. Toxicity studies. This document is not well written, is not comprehensive, nor is it well documented. Furthermore, it does not provide enough information in many cases to determine whether there is any basis for a concern. This is particularly evident on page 5 for cyclohexanone.

2. Cyclohexanone cataract formation in guinea pigs (page 6). No information is provided relative to controls, incidence, or if other dose levels were studied. It would have been useful to discuss how this might relate to potential inhalation exposures and whether inhalation or dermal exposures in the plumber's workplace even approach this level.

3. The authors of the report recommend a ban on the use of DMF in solvent cements if workplace personnel exposures in the air are above 10 ppm. We presume that they understand that this standard is based on an 8-hour time-weighted average.

4. Page 11. The worker survey which is being sponsored by the Pipefitters and Plumbers has so many deficiencies that it would never be able to pass a peer review. While the authors try to discount the effect of numerous biases, the fact remains that we will never know whether there is any relation to solvent cements or other factors because of the absence of appropriate controls. A review of medical records by competent researchers is also imperative in such a study.

   This survey reports a high incidence (1.2%) of cataracts in this group of males and suggests that because a study reports that cyclohexanone causes cataracts in guinea pigs this suggests an occupational link. However, the authors fail to note that cataracts can be caused by numerous chemicals including drugs and metals, and are associated with certain diseases[1]. The lack of any information on medical history further clouds any conclusions and the lack of a control group for metal pipe exposure makes such data meaningless. The fact that Gamma radiation also causes cataracts may cause geographical differences due to variations in exposure to solar radiation. It is also important to note that cataracts are very common in the human population and the types and severity vary greatly.

The report indicates that kidney disorders correlate with length of time working with plastic pipe. Again, such correlation has no meaning without an appropriate metal pipe control group and correction for the effects of age (kidney disorders increase with age of the general human population). It is also important to note that kidney disorders and changes in urine color are common to many chemicals and non-chemical diseases.

Another major concern about this study is the question of exposure. While this group is labeled as having worked with plastic pipe, we doubt that this is the only type of pipe that they were exposed to. Certainly some type of documentation would be needed.

5. Page 17. The authors state that contact (exposure) is appreciable. However, none of the exposure data presented supports that conclusion. In fact, all of the 8-hour TWA concentrations are well below the TLV's.

6. In summary, this report is deficient in numerous respects. Furthermore, there is no valid evidence that this group of workers are at risk when working with plastic pipe.

7. This document does not address or compare risk associated with metal pipe use. One of the areas that is omitted is the potential for exposure to nitrosamines in cutting oils. Fine, et. al.[2] states that the level of nitrosodiethanolamine in eight brands of cutting oils ranged from 0.02% (200 ppm) to 2.99% (29,900 ppm). Since this and many other nitrosamines have been reported as carcinogens[3], it is important that such risks be considered.

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[1]Grant, W. M., Toxicology of the Eye. Second edition, Charles C. Thomas publisher, pp. 22-29, 1974.

[2]Fine, et. al. Science, 196: 170, 1977.

[3]Searle, C. E., Chemical Carcinogens, ACS Monograph 173, pp. 491-625, 1976.