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Dr. Erwin Baumel, Acting Director
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National Institute for Occupational
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5600 Fishers Lane (Room 8A-52)
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Dear Doctor Baumel:

We have obtained a copy of the "Talc Criteria Document" presented to the National Institute for Occupational Safety and Health ("NIOSH") by the Stanford Research Institute ("SRI"). Our review of that document raised several grave concerns about the accuracy of the underlying data and the findings based on that data. Although we understand that a second draft of the document has been prepared, we believe it may be helpful, nonetheless, to share with you our concerns regarding the first draft. Dr. Lane states in the preface to the document that all comments submitted will accompany the final draft presented to the Mine Safety and Health Administration.

The most glaring deficiency we detect in the document is the lack of focus on the particular types of talc to be considered. As you know, talc is found in different degrees of purity. Some contains high amounts of impurities such as asbestos or free silica. This talc is most commonly found in New York (and some parts of California). Talc mined in Montana, on the other hand, is on the average 96-98 percent pure talc with small amounts of chlorite, dolomite and less than one percent quartz. This talc is free of asbestos.

You may recall that in 1973 Cyprus Mines Corporation ("Cyprus") (and several other mining companies) testified before the Department of Interior regarding the frequency with which talc containing asbestos is mined. We emphasized then that talc containing asbestos is found primarily in New York and parts of California and that other talc

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deposits, particularly those in Montana, are free of asbestos. The asbestos bearing New York and California talcs comprise less than 25 percent of all talc produced in the United States.*

We believe it is important to focus on these facts. It is, we submit, highly inappropriate to apply findings with respect to talc containing silica and asbestos to Montana talc. The SRI document, although purporting to distinguish among pure talcs (Montana talc) and those containing silica and asbestos, is devoted primarily to studies of workers exposed to impure talcs or it fails to identify the type of talc to which workers were exposed.

For example, one of the primary studies upon which the SRI document recommendations are based is the work conducted and reported by Fine, Peters, Burgess and DiBeradinis, "Studies of Respiratory Morbidity in Rubber Workers - Part IV". Although Peters, et al. claim that the talc involved was non-fibrous in nature, their report does not substantiate their claim. Of the 21 talc samples they apparently analyzed for free silica, only 12 were tested for asbestos content. Moreover, only 18 of the 21 samples were found to contain less than one percent free silica. (Most talc produced outside of New York and some parts of California contain less than one percent free silica). Thus the Peters, et al study is inconclusive at best, particularly with respect to Montana talc. Moreover, this study strongly suggests that the symptoms of lung disease found in the study could have been the result of exposure to fumes from curing chemical used in the production of rubber than of exposure to talc of whatever type.

A study by W. C. Dreesen, quoted in the document, discusses** the effect on 57 talc workers in a mine producing talc containing tremolite (fibrous asbestos material) at an average concentration of 240 mg/m³. Since the current tolerance

* At page 112, line 3796 of the SRI document, the authors erroneously state that "there is hardly any ore that contains only pure talc. In fact, most of the talc ore mined contains only 15-60% pure talc". Approximately 50% of all talc produced is in Montana and Vermont. These are free of asbestos and generally contain less than one percent free silica.

** The age of the Dreesen study also raises questions concerning its validity and reliability. The results of the study were reported in 1933 - more than 40 years ago.

level for talc dust is 3.3 mg/m^3 , the irrelevance of this study to current talc mines is obvious. A concentration of 240 mg/m^3 is admittedly intolerable.*

The other works relied upon by SRI are equally irrelevant. The second study, reported by Dreesen and DellaVolle in 1935** considers an average exposure concentration for 66 miners of 5.3 mg/m^3 . However, the talc to which the miners were exposed contained 10 percent tremolite. Regardless of whether talc containing 10 percent tremolite presents a health hazard to miners, Montana talc does not have such concentrations of tremolite; in fact, it is, as previously stated, free of tremolite. Thus, reliance on such a study as support for conclusions concerning Montana talc is wholly inappropriate.

The third study relied upon by SRI suffers the same obvious deficiencies noted with respect to the first Dreesen study: (1) it was reported more than 30 years ago (1943); and (2) it considered workers who had been exposed to talc containing asbestos at concentrations of 833.3 mg/m^3 . Moreover, talc containing asbestos, particularly at this level, must be distinguished from Montana talc.

Without unnecessarily extending the length of this letter, suffice it to say that each of the remaining studies to which reference is made in the SRI document suffers from similar deficiencies.*** Most significantly, they fail to distinguish between talc containing asbestos and other potentially dangerous impurities and Montana talc.

* The 3.3 mg/m^3 tolerance level has been in effect for several years. Although Cyprus does not necessarily agree that the tolerance limit should be as low as 3.3 mg/m^3 , it would stipulate that 240 mg/m^3 is intolerable.

** As with the Peters, et al study, the age of this study raises serious doubts as to its reliability in 1979.

*** Of course, if you would like detailed comments regarding the questionable validity and utility of these other works, Cyprus will be happy to provide such comments.

Their unreliability for establishing a tolerance limit for all talc miners at 0.1 mg/m^3 is self evident.* In short, Cyprus submits that there is no reliable data in the SRI document to support (even marginally) such a low tolerance level for asbestos free Montana talc.

Not only is this drastically reduced tolerance limit unsupported by the data, it is also technologically unrealistic. It would likely prompt closure of the major talc mines in the United States.

The same conclusions are required concerning the labeling, posting and orientation requirements recommended in the SRI document. The data cited in the document provides no credible support for such recommendations. For example, the SRI document recommends that talc mine operators must make certain that their employees understand that talc is usually not found in a pure form but is generally mixed with other minerals such as tremolite and anthophyllite, the fibrous forms of which are considered to be carcinogenic to humans at certain concentrations. Such a warning is inappropriate and unnecessarily alarming for individuals who are engaged in the mining, milling and use of Montana talc.

The SRI recommendation that all talc products bear a label which reads "avoid contact with eyes or open skin wounds" has even less foundation than the recommended tolerance limit. It appears that only one source is cited to support the requirement and that study considered one five month old baby. In addition, the study failed even to identify the type of talc to which the baby was exposed.

* A comparison of the recommended limit for talc to tolerance limits for other substances further illustrates the unreasonableness of the SRI recommendations. For example, the tolerance limit for lead arsenate is $.15 \text{ mg/m}^3$ - one and one-half times higher than the TLV requested for talc. Even soluble arsenic (at the reduced level recommended by NIOSH) will have a tolerance limit twice that proposed for talc. The tolerance limit for inorganic tin compounds is 20 times higher than the talc limit proposed. The list is long and varied.

It is hoped that subsequent drafts of this SRI document place greater emphasis on more timely and more relevant background data and distinguish between asbestos containing talc and Montana talc. Based on the foregoing, Cyprus submits that the SRI document is of questionable validity at best and does not warrant serious consideration by NIOSH, particularly with respect to any standard affecting Montana talc.

As you know, Cyprus has cooperated fully with both NIOSH and SRI personnel in their considerations of the potential health hazards of talc and anticipate mutual cooperation in the future. If you have any questions or comments about the foregoing, or would like more details regarding Cyprus' position in this important matter, please feel free to contact us.

Sincerely yours,



Gordon J. Gilm
Vice President
Technical Services

GJG:rh

cc - Mr. Anthony Romero

bcc - M. F. Warner ✓

H. T. Mulryan

S. H. Dunham