UC 149-2

UNION CARBIDE INTERNAL CORRESPONDENCE

PLAINTIFF'S EXHIBIT
UC-2217

METALS DIVISION • P.O. BOX 579 - 4625 ROYAL AVE., NIAGARA FALLS, NEW YORK 14302

To (Name) Mr. D. F. Kapral
Division UCC-Metals Division
Location Niagara Falls, NY

Date June 17, 1982
Originating Dept. Product Development
Answering letter date

A-1-C

Copy to Messrs. R. J. Klotzbach
W. C. Thurber
File

UCC
Attendees-Messrs. R. E. Byrne, Jr.
J. L. Myers
R. G. Woolery
B. L. Ingalls

Subject Highlights of 6/11/82 Meeting at Niagara Falls - Chemical Treatment of Asbestos to Reduce Toxicity.
Project No. 530-10906

Dr. Earl S. Flowers of Flow General, Inc., Petaluma, California, discussed the mechanisms associated with the cytotoxicity of asbestos minerals as related to his patent No. 4,328,197 "Metal-Micelle Asbestos and Treatment of Asbestos and Other Silicate Minerals to Reduce Their Harmful Properties." The Flowers' treatment involves "the formation of a metal-micelle silicate by surface reaction on asbestos with an aqueous solution of a weak base, strong acid or strong base weak acid salt of manganese, chromium, cobalt, iron, copper, aluminum, or mixtures thereof. [The preferred metal salt is $NH_4 Fe(SO_4)_2$]." This treatment is postulated to reduce the hemolytic activity (breakdown of hemoglobin) associated with asbestos on living cells. In theory, the formation of ferruginous bodies are created in the living organism by the action of hemolysis which results in chronic fibrosis and the potential development for carcinoma.

The Flowers' patent demonstrates a reduction of cytotoxicity for chrysotile asbestos* based on biological tests with human lung macrophage cells. Dr. Flowers also visited the King City plant in May and subsequently treated a sample of mill tailings for our evaluation. Analyses requested for Mg and total iron did not show any significant differences from that of untreated mill tailings. These samples were not tested for cytotoxicity.

Major topics of discussion during the meeting pertained to the following:

1. Mechanisms associated with asbestosis and carcinoma related to asbestos. The theory of hemolytic activity by silicate minerals is generally accepted by the scientific community as a potential factor in the development of asbestos related diseases. However, aside from cytotoxic cell studies, no animal tests or epidemiological studies have been done. Animal tests would require 3 to 5 years and cost ~2.5 million dollars according to Flowers. These tests are considered of major import by UCC.

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*UCC "Calidria" asbestos was among several materials tested.

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2. Dr. Flowers' process involves surface treatment only. This was of major concern to UCC because our asbestos tailings and products contain fiber bundles which could ultimately be broken down due to various methods of attrition at some point in time and thereby expose chemically untreated asbestos. No immediate solution to this problem was self evident during the course of the meeting. Dr. Flowers did claim to have some cytotoxic data based on Waring Blender attrited asbestos which he would "try" to obtain for us. Apparently this information is not readily available.

3. The present political atmosphere regarding this approach to detoxification of asbestos is somewhat cloudy. According to Dr. Flowers, principals at EPA & NIOSH view his detoxification process favorably. However, their position appears to be of academic interest only. Dow Chemical Company holds patents of a similar nature based on treatments with metal sulfides (present status unknown). Johns-Manville, among others, has also done some studies in this area but, they do not appear to be actively pursuing the subject presently. No organization to date has initiated any animal studies and Dr. Flowers is obviously soliciting support for this purpose, apparently without success.

No further meetings regarding this subject or study are planned on the part of UCC presently. It was concluded that this type of process would not be applicable for the treatment of mill tailings for both technical and economic reasons. The process may have some potential for asbestos products. However, the general concensus was that the tenuous aspects of the concept in general forego any active interests on the part of Union Carbide for the immediate future.

B. L. Ingalls

BLI:dac

Union Carbide trial exhibit UC-2217: B. L. Ingalls to D. F. Kapral on the 6/11/82 Niagara Falls Meeting about Chemi... Published by AsbestosClaims.Law
ACL Doc 17227 · Page 2 of 2 **asbestosclaims.law/library/17227/2**