

ASBESTOS IN WATER IN THE CHLOR-ALKALI INDUSTRY

R. J. Moolenaar, Dow Chemical U.S.
Midland, Michigan

(Presented at The Chlorine Institute, Inc.
Seventeenth Chlorine Plant Managers' Seminar
New Orleans, Louisiana, February 5, 1975)

PLAINTIFF'S EXHIBIT

DOW-883

ST0006547

Introduction

Dr. Charles Kramer, a physician in Dow's Medical Department, addressed the Fourteenth Plant Managers' Seminar at the 1971 Chlorine Institute meeting on the topic "Asbestos and Health" (1). He clearly pointed out that exposure to air-borne asbestos was of serious concern, and that control of industrial exposure to air-borne asbestos was essential. Good engineering procedures, good housekeeping, and careful monitoring of the workroom air were recommended as aids in the control. Since then, air-borne asbestos hazard control has been the topic of a NIOSH criteria document (2), an OSHA standard (3,4), and an EPA national emission standard (5).

Today I wish to focus attention on asbestos in water, to summarize briefly and comment on health effects of exposure to water-borne asbestos, to discuss the analysis of asbestos in water, and to review results obtained in the determination of asbestos levels in diaphragm cell chlor-alkali process streams. For those not acquainted with the use of asbestos in the chlor-alkali industry, a brief description is supplied in Appendix A. The chemical and physical properties of asbestos are summarized in Appendix B.

Health Effects of Asbestos

The health hazards associated with prolonged inhalation of asbestos have been established beyond reasonable doubt. Chronic effects have been found in workers involved in asbestos mining, milling, textile manufacture, and in the insulation industry. The most obvious is asbestosis, a condition not seen in the general population, characterized by breathing difficulties, wheezing, clubbed fingers, (caused by oxygen deficiency) and cyanosis (blueness of the skin). Cancer of the respiratory tract has also been attributed to prolonged asbestos inhalation. This has been discussed in several publications, most recently by Selikoff and co-workers (6) who studied cancer risk of insulation workers in the United States. They found an incidence of lung cancer about six times that expected in the general population. Selikoff et al. (7) concluded that if asbestos workers smoke cigarettes, the risk is greatly increased. Another form of cancer associated with