ATTAPULGITE (Group 3)

A. Evidence for carcinogenicity to humans (*inadequate*)

A cohort study of 2302 men employed for at least one month between 1940 and 1975 at an attapulgite mining and milling facility in the USA showed a statistically significant excess of lung cancer deaths for white men (16 observed, 8.3 expected), but not for black men. Lung cancer risk was not significantly associated with cumulative dust exposure level, induction-latent period or duration of employment, except that among men employed for five years or more in high-exposure jobs five lung cancer deaths were observed, with 1.6 expected[1]. Interpretation of the excess of lung cancer in this study is restricted because of a relatively small study population, the possibly incomplete identification of the study population, incomplete demographic information on original records, lack of information on smoking and the use of national mortality rates for comparison.

B. Evidence for carcinogenicity to animals (*limited*)

Attapulgite was tested for carcinogenicity in rats by intraperitoneal injection, by intrapleural administration and by inhalation. One sample of attapulgite with 30% of fibres longer than 5 μm and another with 50% of fibres longer than 1.3 μm produced mesotheliomas and sarcomas in the abdominal cavity of rats following its intraperitoneal injection. Three samples of shorter fibre length gave negative results[1,2]. One sample of attapulgite with some fibres longer than 4 μm and two samples with some fibres longer than 6 μm induced mesothelial tumours following intrapleural administration to rats[1,3], but one sample with fewer such fibres did not[1]. Rats administered particles (with a mean length of 0.77 μm, no fibres longer than 4 μm and a mean diameter of 0.06 μm) of 'French' attapulgite by intrapleural administration did not develop mesothelioma, whereas about 50% of rats treated similarly with various types of asbestos did[4]. One mesothelioma was observed in rats following inhalation of two samples of attapulgite[3].

C. Other relevant data

No data were available on the genetic and related effects of attapulgite in humans. It did not induce sister chromatid exchanges in rat mesothelial cells or unscheduled DNA synthesis in rat hepatocytes *in vitro*[5].

References

[1] *IARC Monographs, 42*, 159-173, 1987

[2] Pott, F. (1987) The fibre as a carcinogenic agent (Ger.). *Zbl. Bakt. Hyg. B, 184*, 1-23

[3] Wagner, J.C., Griffiths, D.M. & Munday, D.E. (1987) Experimental studies with polygorskite dusts. *Br. J. Cancer* (in press)

[4] Jaurand, M.-C., Fleury, J., Monchaux, G., Nebut, M. & Bignon, J. (1987) Pleural carcinogenic potency of mineral fibers (asbestos, attapulgite) and their cytotoxicity on cultured cells. *J. natl Cancer Inst., 79*, 797-804

[5] *IARC Monographs, Suppl. 6*, 81-82, 1987