PLAINTIFF'S EXHIBIT
tabbies
UC-1301

INORGANIC FIBROUS MATERIALS AS SUBSTITUTES FOR ASBESTOS

MATERIAL : **ATTAPULGITE**

KNOWN BIOLOGICAL EFFECTS

- Membranolytic (1).
- Cytotoxic to pulmonary macrophages (2).
- Causes mesothelioma in experimental animals (3).
- Adsorbs polyaromatic hydrocarbons (4).
- Lung fibrosis (1).

REFERENCES:

1- Bignon, J. et al. (1980) *in* Biological Effects of Mineral Fibres, Vol. 1:163-181, Ed. J.C. Wagner, IARC Pub. No. 30.

2- AIRD: unpublished data.

3- Pott, F. et al. (1976) Ann. Anat, Pathol. 21: 237-246.

4- Harvey et al. (1984) Brit. J. Ind. Med. 41: 396-400.

AU1046

INORGANIC FIBROUS MATERIALS AS SUBSTITUTES FOR ASBESTOS

MATERIAL : **REFRACTORY (CERAMIC) FIBERS**

KNOWN BIOLOGICAL EFFECTS :

- Alumino-silicate (ceramic) fibers are both fibrogenic and cancerogenic, after administration in experimental animals by implantation and by inhalation (1) .

- Intraperitoneal administration (25 mg) of man-made refractory fibers (mean diameter 1.8 µ) and of UICC crocidolite resulted in an incidence of 86% and 80% respectively of abdominal tumours (2) .

- Under <u>normal</u> service conditions, alumino-silicate (ceramic) fibers can be transformed partly into free silica, cristobalite and mullite (3). These cristalline forms of silica have been reported to be even more fibrogenic than quartz (4).

REFERENCES :

1- Davis, J.M.G. et al. (1983) *in* Biological Effects of Man-Made Mineral Fibres, WHO/IARC, Euro Reports and Studies 81 : p. 124

2- Schultz, D.L. (April 22, 1985) Sohio Engineered Materials Co. Letter to EPA, Washington, Re : FYI-OTS-0184-0288

3- Vine, G. et al. (1985) Ann. Occup. Hyg.28 : 356-359

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INORGANIC FIBROUS MATERIALS AS SUBSTITUTES FOR ASBESTOS

MATERIAL : GLASS FIBERS

KNOWN BIOLOGICAL EFFECTS :

- Causes mesothelioma in experimental animals (1 , 2) .
- Effects in glass-dusted animals parallel those observed in asbestos-dusted animals (3) .
- Small diameter glass fibers are as cytotoxic in cell systems as comparable size asbestos fibers (4).
- Small diameter glass fibers induce metaplasia in organ cultures of trachea, a condition predisposing to malignant transformation by carcinogens found in tobacco smoke (5).
- Glass fibers of respirable size can have an effect on the (human) lung similar to that of asbestos (6) .
- Studies in fibrous-glass production workers are consistent with a growing number of animal studies which demonstrate a carcinogenic response to glass fibers less than 1µ in diameter (7) .

REFERENCES :

1- Pott F. et al. (1974) Environ. Health Perspect. 9 : 313-315.
2- Mohr, U. et al. (1984) Exper. Pathol. 26 : 179-183.
3- Miller, K. (1980) *in* Biological Effects of Mineral Fibers, Vol. 1 : 459-465, Ed. J.C. Wagner, IARC Pub. No. 30.
4- Tilkes, F, and Beck, E. G. (1983) Environ. Health, Perspect. 51 : 275-279
5- Woodworth, C. D. et al. (1983) Cancer Res. 43 : 4906-4912)
6- Chiappino, G. et al. (1981) Med. del Lavoro 72 : 96-101.
7- Bayliss, D.L. et al. (1976) U.S. Dept. of Commerce, NTIS, No. PB-257 784.

AU1050

ORGANIC FIBROUS MATERIALS AS SUBSTITUTES FOR ASBESTOS

MATERIAL : **ARAMID FIBERS**

KNOWN BIOLOGICAL EFFECTS :

- Cytotoxic to pulmonary macrophages (1).

- Exposure of test animals to respirable fraction has caused slight fibrosis, and a low incidence of lung tumors (2).

REFERENCES :

1- Dunnigan, J. et al. (1984) Toxicology Letters 20 : 277-282

2- Reinhardt, C.F. (1985) E.I. du Pont de Nemours & Co. Letter to EPA, Washington, Re : 8EHQ-0485-0550

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