



PubMed Nucleotide Protein Genome Structure PMC Taxonomy OMIM

Search PubMed

for

Go

Clear

Limits

Preview/Index

History

Clipboard

Details

About Entrez

Display

Abstract

Show:

20

Sort

Send to

Text

Text Version

Entrez PubMed

Overview

Help | FAQ

Tutorial

New/Noteworthy

E-Utilities

PubMed Services

Journals Database

MeSH Browser

Single Citation Matcher

Batch Citation Matcher

Clinical Queries

LinkOut

Cubby

Related Resources

Order Documents

NLM Gateway

TOXNET

Consumer Health

Clinical Alerts

ClinicalTrials.gov

PubMed Central

Privacy Policy

1: Int Arch Occup Environ Health 2000 Jun;73 Suppl:S53-9

Related Articles

Links



Asbestos as reference material for fibre-induced cancer.

Muhle H, Pott F.

Fraunhofer Institute of Toxicology and Aerosol Research, Hannover, Germany. muhle@ita.fhg.de

The objective of this paper is to review published data on the carcinogenicity of asbestos fibres with regard to the elucidation of a potential risk originating from exposure to man-made vitreous fibres (MMVF). Steps in the comparison of the two fibre classes are characterization of the fibres, pulmonary deposition, biodegradability and biopersistence and a review of the cancer risk from asbestos fibres after inhalation in rats and humans. Various dust samples of chrysotile, crocidolite, and amosite were used as reference materials in studies with experimental animals. These fibres are normally thinner and shorter than MMVF. These differences in dimensions cause differences in the deposition in the airways. In addition, significant dissimilarities exist in the deposition pattern between rats and humans. Data from biopersistence studies show that focusing only on fibres longer than 20 microm and using weighted half-time for a characterization of risk may be misleading. Inhalation experiments with rats need fibre exposure concentrations over 100 times higher to match the lung cancer risk of asbestos workers, and about 1,000 times higher to reach the same mesothelioma risk. Also, the striking difference between the low lung burden of amphibole fibres of asbestos workers with mesothelioma and the more than 1,000 times higher lung burden of rats with a low mesothelioma risk demonstrates the low sensitivity of the inhalation test model for the carcinogenic potency even of crocidolite fibres. It can be concluded that the rat inhalation model is also not sensitive enough to predict the cancer risk of other fibre types for humans.

Publication Types:

- Review