

Re: Using microscope to test for asbestos fibers

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From: Kevin Cunningham (smskjd_at_mindspring.com)

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"jacques jedwab" <jjedwab@ulb.ac.be> wrote in message
news:jjedwab-2708561351440001@geochim-mac2.ulb.ac.be...
> *Asbestos business is a serious one: one is playing with human
> lives!...Downplaying the difficulty and expertise is foolish.*
>
> *You need a good prep: clean glass slide, clean cover glass, immersion oil,
> good dispersion of all particles and clumps.*
>
> *You need a good light microscope: good adjustable light source (filament
> alignment and variable intensity), double diaphragm, Köhler illumination.
> Binocular viewing is best for avoiding eye strain.*
>
> *You need a good 40x objective, a 10x ocular eyepiece. You can do without a
> phase contrast device, but then your expertise should be at a very high
> level.*
>
> *You need some expertise to recognize each of the different asbestos
> fibres: crocidolite, amosite, chrysotile, which look quite different.
> Morbidity and regulations are widely different for the various asbestos
> -types.*
>
> *You need even more expertise to distinguish asbestos fibers from other
> fibrous silicates (fibrous talc, wollastonite,...which are also found in
> indoor households), from asbestos-looking Ca-sulfates (bassanite, gypsum,
> which are widely released in the outdoors by heating with sulfurous
> fuels), from chrysotile-like organic fibres (cellulose=kleenex), etc.,
> etc. This is why your microscope should better be equipped with
> polarizers.*
>
> *J.J.*

Jacques, While you make some good points I am talking about what is actually required in the US. This is a three stage process. The first step requires a phase microscope with a maximum of 40X. The second stage requires a stereo microscope in a filter box to catch all the particles emitted by the specimen and a very good polarizing microscope with a maximum of 40X. The third stage is the use of a transmission electron microscope. This is used

sci.techniques.microscopy: Re: Using microscope to test for asbestos fibers

to determine exactly you have, is it a type of asbestos or stuff that looks a whole bunch like it. Take a look at the JEOL site, they build EM's for the asbestos business. One of my customers owns two JEOL's, real cool.

In practice one of the best things anyone can do in the asbestos craft is to attend the McCrone Institute.

Kevin Cunningham