To: Hans-Peter Scherti.
1st Vice President,
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Via email ((hans-peter.scherti@rub.de)

Cc: Alessandro Gualtieri
Bryan Bandli

From: Ann G Wylie (awylie@umd.edu)
Chair, Working group on Asbestos

Date: April 27, 2022

Re: IMA Working Group deliberations and recommendations

During the IMA Congress in 2018, the establishment of the IMA Working Group on Asbestos, asbestiform minerals, and other respirable minerals that pose potential negative health risks was approved. The charge to the Working Group was to clarify issues around nomenclature and classification for minerals posing a potential health risk by inhalation. The group formally got underway in January 2019, more than three years ago.

Because of the pandemic, the work of the committee has been entirely by email, making progress difficult at best. Nonetheless, we worked for more than a year with most of the members participating in the deliberations regularly. Our first task was to agree on a set of definitions that are used by both mineralogists, health scientists, and regulators, with different understandings of their meanings. An interim report was provided to IMA in January 2021. However, we were unable to come to agreement, and in truth, I lost confidence that agreement would be possible given the polarization of views on several key definitions.

Despite these setbacks, given the importance that definitions have in communicating information, we decided to begin again in August 2021 with enthusiastic encouragement from Alessandro Gualtieri that we could come to agreement. We worked through the fall and winter and in February, 2022, the committee leadership decided that it was time to vote and a set of definitions that had been the focus of the discussion for three years was formally proposed to the membership. The subsequent vote was 8 in favor, 3 opposed, one abstains, and one nonvoting (an inactive member).

List of definitions in hierarchical order (approved by the Working Group Feb 14, 2022)

Elongate Mineral Particle
Any mineral particle with a length:width ratio (aspect ratio) of 3:1 or greater assuming the width of a particle to be an apparent parameter defined as the longest dimension of the particle in the plane perpendicular to length and the shortest dimension of the two-dimensional outline of a particle.

Mineral fibre
Any elongate mineral particle that attained its shape during formation in nature with an aspect ratio sufficiently large to impart flexibility to the particle.

Fibril
A single crystal of mineral fibre which cannot be further separated longitudinally into smaller components.

Cleavage fragment
Any elongate mineral particle formed by fragmentation. It may have the same chemical formula of the fibrous or asbestiform variety but it is brittle and cannot separate longitudinally into fibres or fibrils.

Fibrous
The crystal habit that describes particles having the appearance of a mineral fibre.

Asbestiform
The crystal habit displayed by elongate mineral particles composed of bundles readily separable into fibres or fibrils which are aligned parallel to their common fibre axis direction but randomly or semi-randomly in the directions perpendicular. Both macroscopically and microscopically, the fibre bundles can display frayed/splayed ends and can be flexible and bent.

Asbestos
A generic term applied to the asbestiform variety of serpentine (chrysotile) and the asbestiform variety of amphibole group minerals (anthophyllite, cummingtonite-grunerite, tremolite-actinolite and riebeckite), which have been exploited, prospected, described in the literature, traded and sold commercially for their unique physical properties resulting from fibril dimension 0.5 μm or smaller in width.

I am attaching a document summarizing the issues raised in the discussion of each term in our list. Despite the fact that there were three negative votes, there is strong support from those who voted yes, including myself. As the attached document shows, several of the concerns expressed asked how the definitions can be applied to particles under an electron microscope or under polarized light microscopy. In the end the committee expressed support for the idea of that criteria for the identification of asbestiform fiber by PLM, SEM and TEM could be developed based on the now vast amount of data we have about the nature of such mineral fiber. This committee, however, voted to discontinue its work.

Next Steps
Members of this committee from the USA, including myself, have testified in federal and state courts and hearings rooms under oath, published papers, and (in at least one case) work for an agency that has published regulations defining some of the very terms we were trying to address. This previous, public, documented record makes it very difficult to approve definitions that might be different or to be open-minded about them in the discussion. Are such members unbiased? As a professor of mineralogy,

I have studied asbestos for almost 50 years. I have lectured and written widely about what these terms mean already. Am I an unbiased participant?

I suggest that if additional work by a group on issues around cancer hazards from mineral particle inhalation were to be undertaken, that the committee be reconstituted to improve impartiality.