



ASBESTOS, TALC, EMPS: AN  
EVOLVING PERSPECTIVE  
ON MINED MINERALS  
**OR A PARADIGM SHIFT?**

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## At the 2014 American Industrial Hygiene Conference in San Antonio, Texas, there was a roundtable entitled “Asbestos and the Society: Perception of an Acceptable Risk Level” here Fred Boelter gave a presentation entitled “Achieving a World Free of Asbestos Risk”.

All of us in the occupational and public health profession know such an achievement is fundamentally impossible if for no other reason than asbestos is a naturally occurring mineral that is inherently part of the earth’s crust. The earth’s crust has inherent hazards and the earth’s air has never been pure, which begs the question of what is meant by “pure” and other loosely defined terms frequently encountered on this topic.

What we also know in our profession is that the term asbestos, at least from a historical perspective, is not a mineralogical term but rather a commercial term related to 6 fibrous forms of specific minerals that were commercially extracted, processed, graded, and sold as ingredients for manufacturing a variety of useful and life-saving products. At least that was the perspective “back then”. We also now know that a significant and substantial exposure or dose (a function of concentration, time, duration and frequency) can result for some people in the development of disease, but further consideration also needs to be given to fiber type and latency recognizing some people with even significant exposure do not develop disease. Such a statement does not mean, “don’t concern yourself about asbestos exposure”, the statement clearly recognizes the reality of our profession, namely, there are a number of factors to consider in judging risk.

The topic of asbestos is complicated, but people like simple answers. While a simple and compelling

answer may be to ban asbestos, such a simple answer is anything but simple to implement. The health effects of significant and substantial exposures to asbestos, the costs and legacy of regulating and remediating, and society’s desire to rid asbestos from the planet is the source of a head scratching conundrum: Is there any merit in chasing insignificant and insubstantial randomly low concentrations of “things of interest” that were never deliberately put into a product but rather are artifacts of mother nature? Is it appropriate to embrace the idea that “detection” equates to “risky”? Is our profession really suggesting that mother nature is so unpredictable that we simply should not harvest anything natural for fear of exposure to something detectable and therefore the only acceptable concentration of an unintended artifact is “zero”? What are we supposed to think when authoritative agencies adopt policies premised upon there being “no safe level of asbestos exposure for any type of asbestos fiber”? Is it even technically feasible to confirm “zero” fibers? Is “zero” what is meant when using the word “safe”? If so, we should all wear respirators all the time!

Obviously, that is not what our profession is saying nor should it be what our profession is implying. Scaring people out of their wits is fearmongering and leads to bad, costly, and unsupportable decisions. We should be scaring people into their wits and assisting our clients and the public into making

supportable and transparent decisions about risk.

Ours is a profession grounded in the principle of protecting by assessing exposures, designing control solutions, and educating workers (increasingly consumers and the public as well), how to use and work safely with hazards. Our profession gives consideration to factors such as “who”, “under what circumstances”, “when”, and “where”. Hazards abound everywhere, but risks are different than hazards.

Let us step back for one moment to the idea mentioned earlier that “detection” equates to “risky”. As we all know, “detection” is a technical term that begs definition. We all know that an analytical result reported as “<0.01” is missing important information. Without details about the identity of the parameter, measurement unit, method of analysis, and laboratory proficiency to produce accurate and reliable data, the value of the datapoint and associated concept of “detection” is extremely limited. Similarly, adequate working definitions are also needed for terms often applied to the topic of asbestos, talc, and elongate mineral particles (EMPs), including: fibrous,



solid solution series, exposure, free, zero, safe, pure, clean, and ban. We probably all have different definitions for those terms, but having an agreed upon and reliable definition is critical in science and in effective communication. The dictionary would not exist if there wasn't the need to understand the meaning of words and terms. Socrates (470–399 B.C.E.) is reported to have said “The beginning of wisdom is the definition of terms”.

**In exploring the world of Risk Science, there are five distinct but intermeshed aspects: Assessment, Characterization, Communication, Benefit/Cost, and Management. The world of mineral “things of interest” explores and necessarily requires working definitions for**

**concepts of “impurities vs. contaminants”, “asbestos, asbestiform, non-asbestiform”, “evolution of analytical methodologies for the detection and classification”, “evolution of occupational exposure regulations and standards”, “comparative assessment of exposure”, “ambient and background exposures”, and “low-level exposure”.**

Durable fibers, minerals, and EMPs are complicated and challenging subjects. At the core of exploring this subject, keep asking yourself, “What are we really trying to accomplish?” As a global society, giant strides on asbestos-related objectives have already been accomplished by banning friable products, regulating abatement and demolition, and eliminating the

mining of commercial amphiboles. Is the “new” focus on vilifying extremely low levels of residual mineral “things of interest” in bulk materials taking the concept of theoretical risk too far? If we focus on elusive natural “things of interest”, will we even see improvements in public health or reduced disease traditionally believed to be associated with asbestos?

**We are a fearful species of not only what we create but also of what is natural, of life, and of death. Be a conscious citizen and participate in this dangerous, risky, and beautiful world. There is much to learn, appreciate, and enjoy.**