

Defining Asbestos in H.R. 1603, the Alan Reinstein Ban Asbestos Now Act

An amended version of H.R. 1603 will be voted on by the full House of Representatives this week. H.R. 1603 would ban asbestos and mixtures and articles containing asbestos one year after enactment and allows a ten year phase-out of asbestos for the chlor-alkali industry. H.R. 1603 would also require reporting and recommendations to address exposures from legacy asbestos use.

In the amended version of H.R. 1603, asbestos is defined as follows:

DEFINITIONS.—In this subsection:

“(A) ASBESTOS.—The term ‘asbestos’ means the following chemical substances:

“(i) The asbestiform varieties of chrysotile, actinolite, amosite, anthophyllite, crocidolite, richterite, winchite, and tremolite.

“(ii) The acicular and fibrous forms of richterite and winchite.

The National Stone, Sand, and Gravel Association is opposing H.R. 1603 because of this definition. Specifically, NSSGA claims that the definition “deviates from the longstanding, mineralogically accurate definition” of asbestos used by other agencies. However, contrary to NSSGA’s claims, there is no widely accepted definition of asbestos. Rather, how to define asbestos has long been the subject of great academic, scientific, and legal debate.

The historic definition of asbestos has more to do with commercial use than mineralogical properties. In a recent March 2020 draft risk evaluation, the Environmental Protection Agency describes asbestos as a “generic *commercial* designation for a group of naturally occurring mineral silicate fibers of the serpentine and amphibole series.”¹ The Chemical Abstract Service (CAS) definition is more general, describing asbestos it as a “grayish, non-combustible fibrous material. It consists primarily of impure magnesium silicate materials.”² The definition NSSGA is most likely referring to, however, can be found in TSCA Title II, which was enacted in 1986.³ TSCA title II defines asbestos as the “asbestiform varieties of (A) chrysotile (serpentine), (B) crocidolite (riebeckite), (C) amosite (cummingtonite-grunerite), (D) anthophyllite, (E) tremolite, or (F) actinolite.”⁴

The TSCA title II definition is outdated and fails to fully protect the public from asbestos because it excludes other elongated mineral particles (EMPs) that share the same properties and

¹ https://www.epa.gov/sites/production/files/2020-03/documents/1_draft_risk_evaluation_for_asbestos_pub.pdf at 31. (emphasis added).

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https://iaspub.epa.gov/sor_internet/registry/substreg/searchandretrieve/advancedsearch/externalSearch.do?p_type=RSITN&p_value=85282

³ 15 U.S.C. §§ 2641-2656

⁴ 15 U.S.C. § 2642(3).

risks as the fibers in the title II definition and narrowly focuses on “asbestiform” varieties. There are around 400 EMPs with similar physical and chemical structures of asbestos that may also be carcinogenic.⁵ Even NSSGA recognizes that some fibers excluded from the Title II definition of asbestos pose risks, and “has long supported the regulation of currently non-regulated asbestiform richterite, asbestiform winchite, erionite (an asbestiform zeolite), and other potentially harmful EMPs.”⁶

The National Institute for Occupational Safety and Health (NIOSH) has acknowledged the limitations and scientific challenges posed by an overly narrow definition of “asbestos” and recommended a broader approach.⁷ In a 2011 circular, NIOSH discusses the limitation of the six-fiber asbestos definition and the focus on “asbestiform” varieties:

As more information became available on the relationship between the dimensions of asbestos fibers and their ability to cause nonmalignant respiratory disease and cancer, interest increased in exposure to other “mineral fibers.” The term “mineral fiber” has been frequently used by nonmineralogists to encompass thoracic-size elongate mineral particles (EMPs) occurring either in an asbestiform habit (e.g., asbestos fibers) or in a nonasbestiform habit (e.g., as needle-like [acicular] or prismatic crystals), as well as EMPs that result from the crushing or fracturing of nonfibrous minerals (e.g., cleavage fragments). . .

Imprecise terminology and mineralogical complexity have affected progress in research. “Asbestos” and “asbestiform” are two commonly used terms that lack mineralogical precision. “Asbestos” is a term used for certain minerals that have crystallized in a particular macroscopic habit with certain commercially useful properties. These properties are less obvious on microscopic scales, and so a different definition of asbestos may be necessary at the scale of the light microscope or electron microscope, involving characteristics such as chemical composition and crystallography. “Asbestiform” is a term applied to minerals with a macroscopic habit similar to that of asbestos. The lack of precision in these terms and the difficulty in translating macroscopic properties to microscopically identifiable characteristics contribute to miscommunication and uncertainty in identifying toxicity associated with various forms of minerals. Deposits may have more than one mineral habit and transitional minerals may be present, which make it difficult to clearly and simply describe the mineralogy.⁸

Due to these concerns, NIOSH changed its recommendations for “airborne asbestos fibers” in 1990 to encompass “the six previously listed asbestos materials” and “also EMPs from their non-

⁵ Salih A. Emri, *The Cappadocia Mesothelioma Epidemic: Its Influence in Turkey and Abroad*, 5 *Annals of Translational Medicine* 239 (2017), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5497117/>

⁶ NGGSA, Accuracy in Definitions and Regulations for Elongate Mineral Particles (EMPs)

⁷ Dep’t of Health and Human Serv., Nat’l Inst. for Occupational Safety and Health, *Asbestos Fibers and Other Elongate Mineral Particles: State of the Science and Roadmap for Research* (2011), <https://www.cdc.gov/niosh/docs/2011-159/pdfs/2011-159.pdf>.

⁸ *Id.* at v-vi.

asbestiform analogs.”⁹ As such, the recommended exposure limit, or REL, requires counting mineral fibers from both asbestiform and non-asbestiform EMPs.¹⁰ NIOSH made this change to protect workers from “potential health risks associated with worker exposures to the analogs of the asbestos minerals.”¹¹

More recently, the United States Food and Drug Administration (US FDA) formed the Interagency Working Group on Asbestos in Consumer Products (IWGACP), with representatives from eight federal agencies, to support the development of standardized testing methods for asbestos and other mineral particles of health concern in talc that could potentially affect consumer product safety. The agencies represented are the Food and Drug Administration (FDA), National Institutes for Occupational Safety and Health (NIOSH), National Institute of Health (NIH)/ National Institute of Environmental Health Sciences (NIEHS), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), Consumer Product Safety Commission (CPSC), the National Institute of Standards & Technology (NIST), and the Department of Interior’s U.S. Geological Survey (USGS). The participating federal agencies have expertise in asbestos-testing and/or asbestos-related issues (e.g., from a health perspective), or because they regulate consumer products. The Working Group recommended the adoption of the term EMP as “*any mineral particle with a minimum aspect ratio of 3:1*”, consistent with how this term is defined in the NIOSH Bulletin 62, to resolve ambiguity and disagreement in mineral (asbestos versus non-asbestos) identification. Thus, an EMP encompasses both asbestiform and non-asbestiform particles that have dimensions that enable them to be respirable.¹²

Like NSSGA, EWG supports the regulation of other EMPs like richterite, winchite, and erionite. We diverge however, on whether such regulation such be limited to “asbestiform” varieties. Asbestiform and non-asbestiform varieties of a mineral often occur matrixed together within a narrow geological formation.¹³ Workers handling EMPs are likely exposed to both asbestiform and non-asbestiform varieties. Although the risks are less well-understood, research suggests that exposure to non-asbestiform varieties of minerals also poses health risks. For example, a 2013 study of workers who mine nephrite, a non-asbestiform tremolite mineral, found that destroying non-asbestiform tremolite releases both asbestiform and non-asbestiform fibers.¹⁴ The study concluded that processing non-asbestiform tremolite increases the risk for pulmonary fibrosis and that workers should undergo medical monitoring.¹⁵ Another study published in August 2018 found high mesothelioma potency in both tremolite fibers in vermiculite from Libby, Montana

⁹ *Id.* at vi.

¹⁰ <https://www.cdc.gov/niosh/npg/nengapdx.html>

¹¹ *Id.*

¹² See *PRELIMINARY RECOMMENDATIONS ON TESTING METHODS FOR ASBESTOS IN TALC AND CONSUMER PRODUCTS CONTAINING TALC* (January 6, 2020).

¹³ *Id.* at 6-7.

¹⁴ Hsiao-Yu, Yang et al., *Pulmonary Fibrosis in Workers Exposed to Non-asbestiform Tremolite Asbestos Minerals*, 24 *J. Epidemiology* 143 (2013),

https://journals.lww.com/epidem/Fulltext/2013/01000/Pulmonary_Fibrosis_in_Workers_Exposed_to.22.aspx

¹⁵ *Id.*

and non-asbestiform EMPs from taconite mining.¹⁶ NIOSH based its 1990 recommendation to include non-asbestiform EMPs in its limits on airborne asbestos exposure, in part, on epidemiological research showing the potential for excess lung cancer cases in populations exposed to non-asbestiform EMPs.¹⁷

The definition of asbestos in H.R. 1603, as proposed, is limited to the “asbestiform” varieties of eight fibers: chrysotile, actinolite, amosite, anthophyllite, crocidolite, richterite, winchite, and tremolite. It also includes the non-asbestiform or “acicular and fibrous forms” of two fibers, richterite and winchite. The inclusion of non-asbestiform winchite and richterite appears to be designed to address EMP fibers in vermiculite like those found in Libby, Montana, where many residents have suffered from asbestos-related diseases. Libby is the site of a former vermiculite mine and one of the largest Superfund sites in the United States. For the first time in its history, EPA declared a Public Health Emergency in 2009 in Libby so that residents could receive federal assistance for victims of asbestos-related diseases.¹⁸ A 2003 USGS analysis found that the vermiculite mined in Libby contained both asbestiform and non-asbestiform (referred to in the study as “prismatic” or “fibrous”) varieties of winchite, richterite, tremolite, and magnesioriebeckite.¹⁹ By including “acicular” and “fibrous” forms of winchite and richterite in the definition of asbestos, H.R. 1603 ensures that articles containing any form of winchite or richterite are banned. H.R. 1603 also requires the National Academy of Sciences to study legacy uses of asbestos and make health recommendations. The inclusion of all varieties of winchite and richterite will ensure that the report and recommendations include Libby vermiculite, which can be found in millions of aging homes across the United States.²⁰

The amended version of H.R. 1603 also includes language in section 2(c) clarifying that the definition only applies to uses of asbestos regulated under the Toxic Substances Control Act. TSCA specifically excludes “any food, food additive, drug, cosmetic, or device.” This change is important because asbestos can contaminate talc, which is often used in cosmetics. The Environmental Working Group has identified more than 2,000 cosmetic products containing talc²¹ and independent testing by consumer groups²² and the Food and Drug Administration²³ has

¹⁶ David H. Garabrant & Susan T. Pastula, *A Comparison of Asbestos Fiber Potency and Elongate Mineral Particle (EMP) Potency for Mesothelioma in Humans*, *Toxicology & Applied Pharmacology* (Online August 2018), <https://www.sciencedirect.com/science/article/pii/S0041008X18303144?via%3Dihub>

¹⁷ See NIOSH, *supra* note 7, at 39.

¹⁸ <https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0801744#bkgground>

¹⁹ <https://libbyasbestos.org/wp-content/uploads/2016/11/Meeker-et-al.-2003.-The-Composition-of-Amphiboles-from-the-Rainy-Creek-Complex.pdf>

²⁰ Ed Cahill, EMSL Analytical Inc, *Asbestos Analysis of Vermiculite and Vermiculite Containing Materials*, October 2014,

https://www.aiha.org/getinvolved/LocalSections/NewEngland/Resources/Presentations/NEAIHA_EMSL_Vermiculite-2.pdf

²¹ <https://www.ewg.org/news-and-analysis/2020/05/it-s-time-end-use-talc-loose-powders>

²² <https://www.ewg.org/release/alert-tests-find-high-levels-asbestos-children-s-makeup-kit>

²³ <https://www.fda.gov/news-events/fda-brief/fda-brief-fda-releases-final-report-talc-containing-cosmetic-products-tested-asbestos>

confirmed the presence of asbestos in products. FDA has held public meetings on asbestos in cosmetics²⁴ and has worked with others to develop a test method²⁵ to more accurately detect fibers in cosmetics products. FDA should retain the discretion to continue this work and include whichever EMPs in the definition of “asbestos” it determines is most appropriate for cosmetic products.

²⁴ <https://www.fda.gov/cosmetics/cosmetics-news-events/public-meeting-testing-methods-asbestos-talc-and-cosmetic-products-containing-talc-02042020-02042020>

²⁵ <https://www.fda.gov/media/134005/download>