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COMPLEX LITIGATION

The next big thing may be very small

Steven R. Kramer / Special to The National Law Journal
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After asbestos, it was widely thought that mold litigation would dominate as the next mass tort. The issue was covered broadly in the media, with national magazines and newspapers warning of a wave of litigation to come. "Black mold" became a feared phrase. At least in the personal injury context, mold litigation seems to have subsided. Asbestos and mold litigation may, however, have set the stage for the next wave of inhalation litigation — involving the emergence of engineered nanoscale materials.

According to predictions by product developers, engineered nanoscale — which is to say incredibly small — materials will be part of everything, from cosmetics, sweaters and electronics to pharmaceuticals. The dawn of this new technology, like most new technologies, gives rise to an analysis of risks versus benefits, and the risks of radical new technologies brings to mind Henry Adams' famous observation at the turn of the Industrial Revolution that man's alteration of nature could have profound consequences: "Every day nature violently revolted, causing so-called accidents with enormous destruction of property and life, while plainly laughing at man, who groaned and shrieked and shuddered." Henry Adams, The Education of Henry Adams, at 492.

Mold is a microscopic member of the fungus kingdom. It is found both indoors and outdoors, and there are thousands of species of mold in a variety of colors. It has led to the discovery of important medicines, yet ingestion of mold-tainted foods has been documented to cause mycotoxin poisoning in animals and humans. That much is settled. Still debated is whether inhalation of mold causes personal injury.

The mold debate was fanned by the federal government itself. It all started with the publication, and later retraction, of a research study of an outbreak of infant pulmonary hemorrhage in the Cleveland area in 1993 and 1994. Researchers discovered that approximately 50% of the involved infants had recurrence of symptoms upon return to their homes. Epidemiologic investigation uncovered different types of mold in the infants' homes. The U.S. Centers for Disease Control and Prevention (CDC) issued a preliminary opinion that the pulmonary hemorrhage was associated with major household water damage occurring during the months before the infants' illness and resulting increased levels of household fungi. CDC Update: Pulmonary hemorrhage/hemosiderosis among infants — Cleveland, Ohio, 1993-1996. Morbidity Morality Wkly. Rep. 46:33-5 (1997).

In 1997, the researchers concluded that mycotoxins could cause infant pulmonary hemorrhage. However, the CDC, over the course of four separate papers, withdrew its support for the Cleveland study's findings, concluding that "the reviews led the CDC to conclude that a possible association between acute pulmonary hemorrhage/hemosiderosis in infants and exposure to molds, specifically Stachybotrys chartarum . . . was not proven." CDC Update: Pulmonary hemorrhage/hemosiderosis among infants — Cleveland, Ohio, 1993-1996. JAMA 283:1951-1953 (2000).

Science now was not sure of itself.

The crisis in the reliability of mold science led the CDC to ask the National Academy of Science's Institute of Medicine (IOM) to review the relationship between damp or moldy indoor environments and the manifestation of adverse health effects. In May 2004, the IOM issued a 355-page epidemiologic study. Damp Indoor Spaces and Health, National Academies Press

(2004), available at www.nap.edu/books/0309091934/html. That study reached the following conclusion:

"The association between fungal exposures and opportunistic fungal infections of the skin of severely immunocompromised persons is well established. For all the other listed outcomes, the committee concludes that there is inadequate or insufficient information to determine whether an association exists between them and exposure to a damp indoor environment or the presence of mold or other agents associated with damp indoor environments. A small number of case studies have associated those adverse health outcomes with damp or moldy environments but only in persons with highly compromised immune systems or when the circumstances, such as ingestion of contaminated foodstuffs, are not relevant to this report." Id. at 252.

Mold jurisprudence

Despite the IOM study, the debate over personal injury mold claims has continued. A review of case law in one state is instructive. In *Beck v. J.J.A. Holding Corp.*, 785 N.Y.S.2d 424 (N.Y. App. Div. 1st Dep't 2004), a New York state intermediate appellate court addressed the scope of a landowner's liability for mold. The state appeals court adopted traditional notice principles and rejected, although not explicitly, the plaintiffs' claim that the defendant had constructive notice of mold by reason of the defendant's actual notice of discoloration of walls and moldy odor from a flood. The *Beck* court dismissed the plaintiffs' negligence claims, reasoning: "[D]efendants asserted that they were first notified of the hazardous mold condition in November 1999. That was the same month that plaintiff became aware of the problem, and a month prior to the time plaintiff moved out of the apartment." Id. at 425-426.

Two years later, in *Daitch v. Naman*, 807 N.Y.S.2d 95 (N.Y. App. Div. 1st Dep't 2006), the same court muddled *Beck*'s bright line. The *Daitch* court — comprising an entirely different panel than the *Beck* court — started its analysis by expressly citing *Beck* for the proposition that a "landlord's notice of discoloration of walls, and knowledge of previous water damage from a flood, does not constitute notice of likelihood of mold growth." Id. at 96-97. Then the court accepted the defendant's argument that the plaintiff did not complain about mold until after the onset of respiratory symptoms, a situation "[t]oo late for the owner to take remedial action." Id. at 96. The court ultimately held that an issue of fact existed, reasoning that repeated and long-standing tenant complaints about water and dust intrusion constituted constructive notice that mold was a foreseeable consequence of the intrusion.

Beck's bright line was seemingly reinstated in a decision handed down five days after *Daitch*, by a panel that included two members of the Beck court. This time, the court found constructive notice lacking. *Krasnow v. JRBG Management Corp.*, 808 N.Y.S.2d 75 (N.Y. App. Div. 1st Dep't 2006). The court stressed that mold was confined to one area and that the defendant did not have notice of water leakage at that area. Krasnow also rejected the plaintiff's mold causation argument because the plaintiff "did not effectively rebut defendant's expert toxicologist's opinion that plaintiff's examination results provided no clinical support for a diagnosis of fungal sinusitis and that no fungus was cultivated from cultures taken from plaintiff's sinuses. Similarly, he did not rebut the opinion of defendant's expert otolaryngologist who noted that plaintiff's preoperative CAT scan showed his sinuses were clear, that plaintiff's medical records indicated that no fungus was ever found in his sinuses and that his allergy to mold was insignificant." Id. at 76-77.

Mold causation science was thoroughly examined by a New York state trial judge in *Fraser v. 301-52 Townhouse Corp.*, No. 113586/02, 2006 WL 2828595 (New York Co., N.Y., Sup. Ct. Sept. 27, 2006). The defendant filed a *Frye* challenge and the evidentiary record was exhaustive — a 10-day hearing, 1,000 pages of testimony and 70 scientific articles and books. The court precluded the plaintiffs from introducing testimony that mold caused their personal injury and dismissed the personal injury causes of action. The court summed up its reasoning as follows:

"The sole expert to testify that mold and/or damp indoor space causes health problems was Dr. Johanning . . . .Th[e] [*Frye*] standard is not met, as Dr. Johanning would have us believe, by anecdotal or individual case studies. Nor is it met by the more likely than not standard he puts forth. Rather, *Frye* requires that plaintiffs prove that causation of illness by mold and/or damp indoor environments is generally accepted by the relevant scientific community. Here, plaintiffs failed to demonstrate that the community of allergists, immunologists, occupational and environmental health physicians and scientists accept their theory — that mold and/or damp indoor environments cause illness." Id. at *25.

Science, which first fanned the mold debate, has now apparently cooled off personal injury mold litigation. But science may have opened the door to the next wave of inhalation litigation.

Nanotechnology has become the new buzz word for innovation, and magazines tout its promise to launch the next Industrial Revolution. From a fundamental perspective, the presence of mold is the unintentional consequence of a prior event, while the presence of both asbestos and nanotechnology more often than not is the result of a certain intention at some point.

Small package, big risk?

The term "nanotechnology" was coined more than 30 years ago to describe the engineering of matter at the scale of one to 100 nanometers — a nanometer is one-billionth of a meter — and harnessing the unique properties of ultrasmall matter. It is hard to imagine a scale that small — items described as being 1,000 times smaller than a red blood cell or 1/10,000 the diameter of a human hair. Engineered nanoscale materials are already in production in stain-resistant clothing and glare-resistant eyeglasses. The technology's promise is so great in electronics, health care, agriculture and environmental applications that nanotechnology is the subject of a national scientific project, the U.S. National Nanotechnology Initiative.

The engineering benefits of nanotechnology arise in part from the unique effect that ultrasmall size has on the chemical, physical and biological properties of matter. Other benefits are derived from unique surface shape and surface chemistry. These phenomena are sometimes referred to as "quantum effects," described in one report as "behavior of matter at the atomic level that is different than the behavior of that very type of matter on a larger scale." American Bar Association Section of Environment, Energy and Resources, Clean Air Act Nanotechnology Briefing Paper, at 5 (June 2006), www.mcafeetaft.com/NewsResources/AttorneyArticles/Articles/ABASEERCAANanotechnologyBriefing.aspx. The extraordinary properties yielded by quantum effects presents potential health risks, and both the United States and the United Kingdom have convened scientific boards to evaluate the potential risks to people and the environment.

Preliminary risk assessments indicate that the dominant pathway of exposure to engineered nanoparticles most likely will be inhalation. Yet inhalation of ultrasmall-sized particles is not new and has long been the byproduct of industrial activities, such as combustion, and natural conditions, such as forest fires and atmospheric photochemistry. Some observers have therefore wondered whether to treat engineered nanoparticles as a form of ultra small-sized particles, while others have noted that engineered nanoparticles have unique chemical properties warranting special treatment.

The potential risks presented by engineered nanoparticles have some early scientific foundation, as early studies have reported that very high doses of engineered nanoparticles are associated with fibrotic lung responses and carcinogenesis. Researchers also have worried that nanoscale particles, being on the same scale as cellular components, may evade the body's natural defenses, and limited studies report possible translocation of inhaled nanoparticles. See, e.g., Oberdorster, G., et al., Nanotoxicity: An emerging discipline evolving

from studies of ultrafine particles, Envtl. Health Persp., 113:823-839 (July 2005); and Zheng, Li, et al., Cardiovascular Effects of Pulmonary Exposure to Single-Wall Carbon Nanotube, Envtl. Health Persp., 115:377-382 (March 2007).

In perhaps an ominous sign, a U.K. study analyzed exposure to asbestos as a means of understanding the potential risks of inhaled engineered nanoparticles. The study concluded that "[s]tudies of asbestos and other fibres have shown that their toxicity depends on the two physical factors, length and diameter, and the two chemical factors, surface activity and durability (ability to resist degradation)." The Royal Society, Nanoscience and Technologies: Opportunities and Uncertainties, July 29, 2004, available at www.nanotec.org.uk/finalReport.htm, at 38. The study then noted that certain types of engineered nanoparticles, specifically nanotubes, represent a potential hazard due to the combination of their fibrous shape, nanoscale dimensions and potential ability to resist dissolution in the lung. The study issued the followed caution: "Given previous experience with asbestos, we believe that nanotubes deserve special toxicological attention." Id. at 43.

While science appears to have cooled off mold personal injury litigation, it may have opened the door to the next wave of inhalation litigation simply by doing what it does best, and that is examining the potential of radical new technologies. The U.K. study's reference to asbestos exposure as means of understanding potential exposure to inhaled engineered nanoparticles is an ominous sign. Asbestos was heralded as an engineering innovation, and yet decades of litigation have ensued. Let us hope that engineered nanoparticles do not meet a similar fate.

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