

## A Ubiquitous Nature

By Michael J. Crist

**F**ormaldehyde is present in many personal, residential, and industrial products, thereby creating a pool of potential litigants that rivals that of asbestos litigation.

# Formaldehyde— The Next Asbestos?

No single mineral has changed the litigation landscape more than asbestos. Once the “miracle mineral” used in over 3,000 products, it was the darling of industry, providing tensile strength and thermal and chemical resistance

in a wide variety of commercial and consumer products. For the public it offered protection from that most primordial of fears: the fear of fire. It was not only suggested, but required, by governmental, engineering, and military regulations and specifications. However, as evidence began to accumulate about its negative properties, other regulations began to limit, control, or ban selected uses. The lawsuits started soon after and resulted in a litigation juggernaut that has continued for over 30 years. Scores of injured persons, bankrupt companies, and overburdened courts and carriers have been the outcome. At the same time, the litigation has provided some mass tort attorneys, particularly those who started at the cusp of the litigation, with wealth beyond the dreams of avarice.

Since then, interested parties have remained vigilant; they either hope for or fear the next asbestos. The perfect

storm would be to find a ubiquitous carcinogenic chemical agent in thousands of diverse products with a massive universe of plaintiffs and a large pool of viable defendants. Imagine, if you will, a chemical present everywhere—from bras to buildings, floors to furniture, cosmetics to crematoriums, and residential to commercial settings. Imagine a chemical which may cause rashes and asthma when someone experiences transient exposures, whether by inhalation, ingestion, or dermal contact, with more prolonged exposures causing cancer.

Imagine the shock of jurors who realize that they themselves had used that chemical in their own households; even though they had previously associated it only with the morbid, the macabre, and the dead. Finally, imagine that scientific agencies have only recently classified this chemical



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as a known human carcinogen and that this wave of litigation is only in its infancy.

That chemical exists. If you are in a new home or office as you read this, you are probably breathing it. It is, as you have surmised from this article's title, formaldehyde, and it is ubiquitous. It is found in homes, offices, and industries. It is a natural byproduct of cigarette smoke and forest fires. While traditionally most exposures were thought to be minute and insignificant, the Report on Carcinogens published by the U.S. Department of Health and Human Services raised the threat level by classifying it as a known human carcinogen in 2011. Such captions, devoid of detail and meaning, appear often enough to capture the attention of the public, the media, and plaintiffs' attorneys, thereby raising the specter of new litigation. It is incumbent upon defense counsel to provide context and depth to the caption and while doing so to provide their own captions based upon the facts. While perception may be reality for the media, a courtroom should aspire to a higher standard.

Will formaldehyde fuel the next wave of toxic litigation that drives over one hundred companies bankrupt, heralds a new wave of financial insecurity for insurers, and funds legions of attorneys for next 20 to 30 years? This article will generally discuss the following:

- What is formaldehyde?
- Where is formaldehyde?
- Who are the potential formaldehyde plaintiffs?
- What are the potential hazards posed by formaldehyde?
- How have formaldehyde-related claims emerged?
- How to formulate unified defense strategies
- Is formaldehyde the next asbestos?

### What Is Formaldehyde?

Formaldehyde is a colorless, pungent, organic gas composed of carbon, hydrogen, and oxygen (HCHO). It is often found in water-based solutions. It both preserves and disinfects, and it is produced both naturally and commercially.

### Where Is Formaldehyde?

The 12th Report on Carcinogens (RoC) states, "Because formaldehyde is ubiqui-

tous, it has been suggested that occupational exposure to formaldehyde occurs in all work places." U.S. Dep't Health and Human Services, Nat'l Toxicology Prog., *Report on Carcinogens Background Document for Formaldehyde 7* (12th ed. 2011). This includes the manufacture of formaldehyde and formaldehyde-based resins, wood composite and furniture products, plastic production, foundries, fiberglass production, construction, agriculture, firefighting, embalming and biology laboratories, and histology and pathology laboratories. *Id.* The chief medical officer of the American Cancer Society, Dr. Brawley, has said, "It's the smell in new houses, it's in cosmetics like nail polish.... It's everywhere." Gardiner Harris, *Government Says 2 Common Materials Pose Risk of Cancer*, N.Y. Times, June 20, 2011.

While such comments may seem apocryphal, the diverse use of the chemical is truly staggering, creating a large pool of potential plaintiffs and defendants. In 2013, global consumption of formaldehyde was estimated to be 42 million tons. It is produced as a byproduct of combustion by cars, trucks, power plants, and refineries. U.S. Dep't Health and Human Services, Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Formaldehyde* (1999), <http://www.atsdr.cdc.gov/toxprofiles/tp111.pdf>. In the United States, over 50 percent was used in industrial resins, such as urea-formaldehyde resins (UF), phenol-formaldehyde (PF) resins, polyacetal resins, and melamine-formaldehyde resins which were used in the construction of particleboard, medium density fiberboard (MDF), plywood, composite wood products, furniture, and floors. Nat'l Toxicology Prog., U.S. Dep't of Health and Human Services, Nat'l Toxicology Prog., *Final Report on Carcinogens Background Document for Formaldehyde 200* (Susan Dakin, 12th ed. 2010).

From the factory floor to a consumer's face, the chemical is ubiquitous. It has been

found in significant amounts in cosmetics such as hand lotions and creams, bubble baths, suntan lotions, mascara, hair and nail products, feminine hygiene products, and deodorants. *Id.* at 9. For anyone from the aspiring model to the dearly departed, the chemical is commonplace. Formaldehyde's preservative or antibacterial properties have made it useful in various medical

However, the presence of formaldehyde in consumer products and increasing regulation and testing in this area will continue to spawn new consumer products cases, ones which feature greater jury appeal because of a jury's expected familiarity with the products.

applications such as embalming fluids, hospital disinfectants, and medications that treat everything from cancer to tapeworms. *Id.*

### Who Are the Potential Formaldehyde Plaintiffs?

It is axiomatic that the greater the volume and diversity of products, the greater the pool of potential plaintiffs. Because the products containing formaldehyde are used in scientific, medical, residential, commercial, and industrial settings, potential plaintiffs are found in each of those populations.

Moreover, the pool is expanded exponentially by the multiplicity of the exposure pathways. While some chemicals feature only a single pathway of exposure, formaldehyde can cause injury and disease through all pathways: inhalation, ingestion, and dermal contact. Thus, merely touching, tasting, or breathing it can cause adverse effects.

Traditionally, the focus of public health had been on long-term industrial exposures. However, the presence of formaldehyde in consumer products and increasing regulation and testing in this area will continue to spawn new consumer products cases, ones which feature greater jury appeal because of a jury's expected familiarity with the products. Indeed, the majority of media attention this year has focused on Lumber Liquidators and nail salon products. The first involves allegations of exposure to homeowners and the second to persons in nail salons. While such exposures may be lower than industrial exposures, they capture the attention of the media, the public, and their attorneys. In contrast, few reports have focused on the medical, scientific, and mortuary workers who have worked with high concentrations of formaldehyde for decades.

As reported by the World Health Organization International Agency for Research on Cancer,

the highest continuous exposures have been measured during the varnishing of furniture and wooden floors, in the finishing of textiles, in the garment industry, during the treatment of furs, and in certain jobs within manufactured board mills and foundries. Short-term exposures to high levels have been reported for embalmers, pathologists, and paper workers. Lower levels have usually been encountered during the manufacture of synthetic vitreous fibers, abrasives, and rubber, and in formaldehyde production industries. A very wide range of exposure levels has been observed in the production of resins and plastic products.

U.S. Dep't of Health and Human Services, Nat'l Toxicology Prog., *Final Report on Carcinogens Background Document for Formaldehyde* 17 (12th ed. 2010). While beyond the scope of this article, the cited literature provides a plethora of exposure measurements and assessments for a wide range of products and situations.

Exposures vary dramatically depending upon the use, age, condition, and type of product. Liquid products and processes tend to produce more exposure than off-gassing from solid products. Newer products release more fumes than old ones for which deterioration stabilized with time. Therefore, workers varnishing floors receive far more exposure than persons liv-

ing in that home several months later. Physical abrasion of a product may also increase exposures. For instance, some researchers believe that formaldehyde exposures from wood finishing are increased by virtue of the surface of the particulate dust serving as a transport mechanism. *Id.* at 17.

Even when a product does not contain formaldehyde, it may be produced by the breakdown of the product's components. The resulting levels of exposures vary with temperature, humidity, and ventilation—with greater temperatures and humidity producing higher releases. Thus a Federal Emergency Management Agency (FEMA) trailer placed in New Orleans will produce more off-gassing than it would in Alaska. *Id.* at 59. Increased air stagnation also increases exposure. *Id.*

### **What Are the Potential Formaldehyde Hazards?**

Elevated exposures to formaldehyde has long been associated with “1) sensory irritation of the eyes, nose, and throat, 2) upper respiratory tract pathology, 3) pulmonary function, 4) asthma and atopy, 5) neurologic and behavioral toxicity, 6) reproductive and developmental toxicity, and 7) immunological toxicity.” World Health Organization, *Formaldehyde: Concise International Chemical Assessment Document* 40 (World Health Organization, 2002), <http://www.inchem.org/documents/cicads/cicads/cicad40.htm> (last visited Oct. 12, 2015).

The specific exposure level at which these symptoms manifest is disputed. The Agency for Toxic Substance and Disease Registry (ATSDR) generally reports that indoor exposures tend to exceed outdoor exposures. Indoor exposures range from 0.02 ppm to 4 ppm and outdoor ranges up to 0.02 ppm in suburban areas. ATSDR, *ToxFAQ's*, CAS # 50-00-0. Nasal and eye irritation, neurological effects, increased risk of asthma and allergies have been observed at levels as low as 0.1 to 0.5 ppm. Changes in pulmonary function have been observed at 0.6 to 1.9 ppm. *Id.*

The 2012 World Health Organization International Agency for Research on Cancer (IARC) has classified formaldehyde as belonging to Group 1 “carcinogenic to humans.” Int'l Agency for Research on Cancer, *Monograph on Formaldehyde* 430 (2012). The report concluded that “[f]ormaldehyde causes cancer of the nasopharynx

and leukaemia” with a positive association to sino-nasal cancers. *Id.*

In the United States various agencies have debated carcinogenicity. These debates are important for establishing the state of art of knowledge regarding particular hazards. In June of 2010, a U.S. Environmental Protection Agency (EPA) draft report found a causal relationship between formaldehyde and cancers of the upper respiratory tract, with the strongest evidence for nasopharyngeal and sino-nasal cancers. There was also a causal association between formaldehyde and lymphohematopoietic cancers, such as Hodgkin's lymphoma and leukemia, particularly myeloid leukemia. U.S. Env'tl. Protection Agency, *IRIS Toxicological Review of Formaldehyde-Inhalation Assessment* (External Review Draft) (2010).

In April of 2011, the National Academy of Sciences (NAS) disagreed. It found the EPA's methodology “subjective and not standardized” with insufficient “documentation of methods and criteria” in analyzing the scientific evidence. Nat'l Research Council, *Review of the EPA's Draft IRIS Assessment of Formaldehyde*, (Apr. 2011).

Two months later in June of 2011, the 12th RoC classified formaldehyde as a “known human carcinogen.” U.S. Dep't Health and Human Services, Nat'l Toxicology Prog., *Report on Carcinogens Background Document for Formaldehyde* 3–4 (12th ed. 2011). It found that formaldehyde caused nasopharyngeal cancer, sino-nasal (nasal and paranasal) cancer, and myeloid leukemia. *Id.* However, it found no causal connection with all lymphohematopoietic cancers. *See also*, U.S. Dep't Health and Human Services, Nat'l Toxicology Prog., *Report on Carcinogens Background Document for Formaldehyde* 7 (13th ed. 2014).

### **A Few Relevant Standards**

Violations of governmental regulations often result in threatened or actual litigation. There are multiple state and local standards governing the presence, use, or exposure from formaldehyde in different settings. However, only a few will be mentioned here. In 1984, the U. S. Department of Housing and Urban Development (HUD) set standards for construction of manufactured homes, which included formaldehyde emissions. *See generally* Nat'l Ass'n of Home Builders Research Center Inc., *Fac-*

*tory and Site-Built Housing A Comparison for the 21st Century* 58 (Oct. 1998).

In 1992, the U.S. Occupational Safety & Health Administration (OSHA) promulgated a comprehensive formaldehyde standard that imposes warning guidelines, exposure limits, safety programs, and engineering and protection protocols. It requires the retention of exposure moni-

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toring and medical surveillance records for 30 years. All workplace mixtures containing at least 0.1 percent formaldehyde must have warning labels. 29 C.F.R. §1910.1048.

Permissible exposure limits (PELs) include an 8-hour time-weighted average (TWA) of 0.75 parts per million (ppm), a short-term exposure limit (STEL) of 2 ppm, and an 8-hour TWA action level of 0.5 ppm. An STEL is a maximum peak exposure that is measured or averaged over a 15-minute period. Exceeding these guidelines may trigger a compliance program requiring regulated areas, respirator use, engineering changes, medical monitoring, medical surveillance, or a combination. 29 C.F.R. §1910.1048(b).

The Formaldehyde Standards for Composite Wood Products Act had provided various emissions standards that varied significantly, depending upon the type and composition of wood products involved. Formaldehyde Standards for Composite Wood Products Act, S. 1660, 111th Cong. (2010). By the end of this year, the EPA will implement new directives concerning wood products, which will largely follow the guidelines set by the state of California.

For cosmetics, the FDA Cosmetic Ingredient Review (CIR) Expert Panel opined that formaldehyde levels of less than 0.2 percent

were non-hazardous wherever contact with the skin was avoided, something impossible with a hair care product., U.S. Food and Drug Admin., *Nail Care Products* (2013), <http://www.fda.gov/Cosmetics/ProductsIngredients/Products/ucm127068.htm> (last visited Oct. 12, 2015).

### How Have Formaldehyde-Related Claims Emerged?

In only a few short years, a number of lawsuits against a wide array of products have appeared in which plaintiffs have alleged personal injury and product damage claims.

#### Lumber Liquidators Wood Flooring

Once beloved by Wall Street, Lumber Liquidators' stock dropped from a high of \$69 per share to a low of \$12 dollars because of a single *60 Minutes* episode that alleged elevated levels of formaldehyde in some of the company's Chinese wood floor products. This one episode, which was repeated on August 16, 2015, has now triggered a multidistrict litigation and shows the dangers posed by a mere allegation that a product contains formaldehyde. The *60 Minutes* report alleged that formaldehyde exposures were 13 times permitted levels, the products had been mislabeled as California CARB Phase 2 Compliant to purposefully mislead the public, and persons were exposed to excessive amounts of formaldehyde. The company immediately denied these allegations, provided customers with testing devices to measure off-gassing, and reported that the results showed no excessive exposures. Plaintiffs and third parties in-turn attacked the accuracy of the home kits, and they claimed lack of proper certification of the laboratory that examined the results. News articles discussing the litigation have tended to focus upon allegations of knowing concealment of a carcinogenic defect, even though the actual claimed injuries were more benign, including rashes, asthma, respiratory difficulties, and hypersensitivity and often in children who played on the floors.

#### Urea-Formaldehyde Foam Insulation

Some of the first formaldehyde cases began in the early 1980s with property damage claims resulting from U.S. Consumer Product Safety Commission (CPSC) bans on residential use of urea-formaldehyde foam insulation (UFFI). *Formaldehyde Exposure*

*in Homes: A Reference for State Officials to Use in Decision-making, Environmental Health* (2008). While the ban was overturned, residential use greatly decreased. U.S./ Consumer Product Safety Comm'n. *CPSC Bans Urea Formaldehyde Foam Insulation*. Press release No. 82005 (1982).

#### FEMA Trailers

Combining elements of a natural catastrophe, destitute poverty, slow governmental response, and sick children, the government's provision of shelter in the form of FEMA trailers proved costly for all. After Hurricanes Katrina and Rita, persons living in FEMA trailers complained of nosebleeds, headaches, and other illnesses. The Agency for Toxic Substances and Disease Registry found elevated formaldehyde emissions. The CDC and FEMA conducted additional which showed elevated formaldehyde levels. Agency for Toxic Substances and Disease Registry, *Formaldehyde Sampling of FEMA Temporary-Housing Trailers* (2007) (updated).

While bellwether cases were generally successful for the defendants, Judge Kurt D. Engelhardt approved a FEMA-trailer settlement, which provided \$37.5 million to roughly 55,000 residents. Matt O'Donell, *FEMA Trailer Formaldehyde Class Action Settlement, Top Class Actions* (Oct. 11, 2012), <http://topclassactions.com/lawsuit-settlements/lawsuit-news/2558-fema-trailer-formaldehyde-class-action-settlement> (last visited Oct. 23, 2015).

#### Baby, Personal Care, Medicinal, and Cosmetics Products

In any situation, chemical exposures to children and mothers raise significant media attention and juror ire. In 2009, The Campaign for Safe Cosmetics (CSC), a group of consumer activists, tested various baby shampoos, bubble baths, and lotions for formaldehyde. In May of 2009, the CSC and other consumer groups sought voluntary removal of the chemical. Class actions were filed in northern Illinois and New Jersey. Defense counsel successfully argued that the products worked as intended and had caused no significant physical or economic injury. *Levinson v. Johnson & Johnson Consumer Cos., Inc.*, No. 09-CV-3317(DMC), 2010 WL 3024847 (D. N.J. Aug. 2, 2010); *Crouch v. Johnson & Johnson Consumer Cos.*, No.

09-CV-2905(DMC), 2010 WL 1520152 (D. N.J. Apr. 15, 2010).

### **Brazilian Blowout Hair Straightener and Cosmetics**

In 2011, the plaintiffs' law firm Baron & Budd filed a class action, alleging that the manufacturer of Brazilian Blowout, a widely advertised hair straightener, had mislabeled it as "formaldehyde-free" when in fact it contained 8 percent to 12 percent formaldehyde according to testing by Oregon OSHA and Health Canada. U.S. Occupational & Safety Admin., Hair Smoothing Products That Could Release Formaldehyde—Background,

(last visited Oct. 23, 2015). The class action certified in April of 2011 was ultimately resolved for between \$3 million to \$4.2 million. *In Re GIB, LLC Cases*, Superior Court of Los Angeles, Case No. J.C.C.P 4657, Settlement Agreement.

Similar allegations are being raised regarding nail salons. With such catchy titles as "Perfect Nails, Poisoned Workers," the *New York Times* reported that workers were regularly exposed to formaldehyde and other toxic chemicals. Sarah Maslin Nir, *Perfect Nails, Poisoned Workers*, N.Y. Times, May 8, 2015, <http://www.nytimes.com/2015/05/11/nyregion/nail-salon-workers-in-nyc-face-hazardous-chemicals.html> (last visited Oct. 23, 2015). Such media attention, combined with the increasing scrutiny of the chemical, is expected to result in further litigation.

### **Textiles**

Formaldehyde may be used to manufacture textiles to impart permanent press, fire and stain resistance, and colorfast properties. One Ohio woman had alleged that she suffered scarring from Victoria's Secret bras that contained formaldehyde. *Roberta Ritter v. Victoria's Secret Stores, Inc., et al.*, Case No: CV 08 659494. While the suit was ultimately dropped, it generated considerable media attention.

### **How to Formulate Unified Defense Strategies**

Essential to the defense effort is a unified multijurisdictional strategy consisting of investigating a claim, knowing a product, determining alternative etiologies of the disease, and an attacking a plaintiff's claims of general and specific causation.

While a full description of the numerous defenses to strict liability, negligence, failure to warn, workers' compensation, and breach of implied and actual warranties is beyond the scope of this article, a few general issues will be discussed.

A multiplicity of lawsuits raises the specter of a multiple inconsistent defense positions, each of which could serve as a corporate admission in a later case. Toxic tort litigation is riddled with stories of hastily drafted discovery responses or poorly prepared corporate witnesses, which haunt a defendant into bankruptcy. To minimize such happenings, initiating an early investigation of corporate products and knowing the potential hazards is essential. A well-funded plaintiff's bar will file requests for corporate documents and depositions concerning safety records, workers' compensation records, Material Safety Data Sheets (MSDS), product testing and evaluation, air sampling and monitoring, membership in trade organizations, regulatory citations and challenges, lawsuits, manufacturing methods, product and manufacturing cleaning and sterilization, among other things. Some jurisdictions liberally grant such discovery in toxic tort cases even when product identification has been limited. As such, completing an early investigation into such areas and developing corporate witnesses for existing corporations to respond to 30(b)6 corporate witness deposition notices is an essential part of the process.

### **Claim and Product Investigation**

All formaldehyde cases require investigating a plaintiff's claimed source of exposure, developing alternative exposure scenarios, analyzing a plaintiff's environment, and evaluating a product for the presence, production, or release of formaldehyde. As there are no signature diseases caused exclusively by formaldehyde, a plaintiff's environment should be measured for alternative sources of formaldehyde or other possible irritants or carcinogens. Completing a simple review of Facebook pages and public websites can provide significant data regarding travel, work, and ingestion of and exposure to multiple toxins.

### **Selection, Retention, and Preparation of Experts**

The prosecution and defense of toxic tort litigation heavily depends upon care-

fully selecting, developing, and preparing experts to formulate a multifactorial analysis and defense. Such experts can include certified industrial hygienists to measure exposures, discuss regulations, and potentially question the accuracy of home-testing devices; toxicologists to discuss potential toxicity at low levels and exposure pathways; epidemiologists to

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analyze flaws in study methodologies discussed in state of the art documents; pulmonologists to discuss claimed respiratory difficulties and potential alternative causes and sensitizers; economists to discuss projected damage loss claims; engineering and product specialists to discuss product design and manufacture, to dispute the presence of formaldehyde, or alternatively, to explain the presence of the chemical; and occupational medical specialists to discuss the state of the art in occupational settings.

### **Proximate Cause**

A plaintiff must establish that the product involved proximately caused the asserted injury. This consists of two components. The first is general causation: can this product cause the disease in general? The second is specific causation: did this product cause this plaintiff's disease. Many jurisdictions require that a defendant's product be a substantial causative factor in the disease process. To establish this, a plaintiff must rely upon experts and scientific methodologies, which are generally accepted in the scientific community or not junk science. *Frye v. United States of America*, 54 App. D.C. 46, 293 F.1013 (1923); *Daubert*

*v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786 (1993); *Kuhmo Tire Co. v. Carmichael* (97-1709), 526 U.S. 137 (1999), 131 F.3d 1433, *reversed*. *Daubert* and *Frye* challenges in such cases are critical.

**General Causation**

The courts in part rely upon epidemiology, which is the study of factors influencing the frequency and distribution of disease in populations. Using either cohort or case control studies, epidemiologists determine the strength of an association between various factors and disease by looking at the elements outlined by Sir Austin Bradford Hill in 1965. Austin B. Hill, “*The Environment and Disease: Association or Causation?*” Proceedings of the Royal Society of Medicine, 58, 295–300 (1965). These elements include consistency, strength of association, specificity, temporality, coherence and plausibility, dose response, and experimental confirmation. For defense counsel, each crite-

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 on offers an opportunity for study and cross-examination.

Similarly, carefully examining the reported risk defined in epidemiology studies, their confidence intervals, and their design parameters often provide meaningful methods of attacking the claimed association between formaldehyde and various diseases at multiple exposure levels. Individual studies are subject to attack regarding their methodologies, error rates, reproducibility, controls, population selection, confounding factors, and applicability to situations involving lower exposures or different populations. The variety of exposure pathways that differ depending upon the population or product makes drawing general causation conclusions from these studies, or rebutting them, as they apply in a particular case complicated.

For instance, industrial settings tend to show the strongest link to disease. These exposures are of significant duration and intensity. On the other hand, hair products,

cosmetics, and wood products tend to generate exposures more limited in duration and intensity. As such, the links tend to be more tenuous. In fact, the exact threshold at which irritation to skin, eyes, or mucous membranes can occur is debated and may vary depending upon individual sensitivities. As such, low exposures to an individual product may not result in an increased risk of disease.

**Specific Causation**

A plaintiff must prove that formaldehyde exposure from each defendant’s product caused his or her disease. There are several obstacles to this claim. First, unlike asbestos, silica, or benzene, which have signature diseases in which one agent exclusively causes the disease, there is no signature disease for formaldehyde exposure. Second, there are few accepted biomarkers for either the presence or extent of formaldehyde exposure. In general, the body and the atmosphere readily break down formaldehyde. In reviewing the proposed EPA regulations, the National Research Council concluded that “inhaled formaldehyde predominantly remains in the respiratory epithelium... studies have found that formaldehyde undergoes rapid elimination in blood with virtually no increase in “free” formaldehyde in blood or systemic tissues.” Nat’l Research Council, *Review of the EPA’s Draft IRIS Assessment of Formaldehyde* (Apr. 2011).

Third, the lack of free formaldehyde at the sites where blood and lymphatic cancers originate make it harder to establish a pathway of carcinogenesis for these diseases. Fourth, the claimed exposure to a single defendant’s product is likely to be of a shorter intensity and duration than those linked to specific diseases. The claimed exposure to a single defendant’s product may be less than background levels, less than normal environmental exposures to other claimed toxins, or less than threshold levels. Fifth, because of the ubiquitous nature of formaldehyde, a plaintiff will have substantial other exposures.

For example, most chemicals feature a dose-response relationship with a threshold below which disease is not an issue. Chemicals toxic at one level may be beneficial at another. Consumption of a few aspirin is beneficial, while consumption of a few bottles is fatal. Even if a plaintiff

**Table 1. Comparison between asbestos and formaldehyde litigation**

Factor	Asbestos	Formaldehyde
Signature diseases	Yes	No
Resistant to decay	Yes	No
Measurable in body years after exposure	Yes	No
Strong epidemiology establishing causation	Yes, for certain types and certain exposure levels	Mixed
Public knowledge of hazards	Yes	Mixed
Saturation advertising	Yes	Not yet
Established body of experts	Yes	Developing body related to consumer products
Extensive government regulation	Yes	Increasing
Past exposures would violate current regulations	Yes	Yes
Extensive usage of product	Yes, ubiquitous	Yes, ubiquitous
Significant population of exposed persons	Yes	Yes
Blue-collar exposures	Yes	Yes
White-collar exposures	More limited, but yes	Yes
Low levels of exposure cause disease	Yes, with caveats	Yes, with caveats
Claims of slow corporate and government response to hazard	Yes	Yes

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can prove that a product has formaldehyde, he or she must prove that he or she was around this product, that this product released formaldehyde, and that the resulting exposure was of sufficient duration and intensity to cause his or her disease. The majority of studies purporting to find linkages between formaldehyde and cancer involve persons with significant protracted exposures such as factory workers. Few studies provide any linkage at the substantially lower exposures experienced by the majority of persons using consumer products. It is for this reason that while billions are exposed to formaldehyde on a daily basis, comparatively few will develop symptomatology or disease.

### Is Formaldehyde the Next Asbestos?

While we all experience formaldehyde exposure, for most, such exposures are too small to cause symptoms or disease. Without clear biological markers of exposure or a signature disease, and with uncertainties regarding the toxicity of low-dose exposures for various diseases, formaldehyde plaintiffs have significant obstacles that make it unlikely that the number of formaldehyde cases will reach the “elephantine mass” of asbestos litigation. *Ortiz v. Fibreboard Corp.*, 527 U.S. 815, 821 (1999). With that said, the number of product-defect, failure-to-warn, product-mislabeling, negligence, and warranty claims alleging both personal injury and product damage claims will continue to rise.

As indicated in Table 1, asbestos and formaldehyde litigation have both similarities and differences. Asbestos has been both deified and demonized. The same public that first heralded it as a “magic mineral” now demonizes it as an insidious cancer-causing mineral, with perceptions about it colored by saturation advertising. Formaldehyde, on the other hand, has always been known for its preservative qualities, but the public has never clamored for its use in household items. Indeed, even today few know of its ubiquitous nature. The first reaction to hearing that formaldehyde is in toys, bras, or trailers is always, “Why?”

Nevertheless, both asbestos and formaldehyde were widely used in a multitude of products and small exposures can have potentially dire results. As such, the poten-

tial pool of litigants for formaldehyde is as great as the pool of asbestos litigants. Similarly, because the United States has lagged behind European countries in regulating formaldehyde, plaintiffs will claim that the United States and its companies have not responded to a known threat. On the other hand, the questionable epidemiology, lack of strong biomarkers establishing exposure, lack of a signature disease, and low durability and persistence of formaldehyde should prevent the formation of a perfect storm of litigation.

Such prognostications are, however, always suspect. When asbestos litigation began 30 years ago, few persons envisioned either the duration or growth of the litigation. They did not foresee the development of litigation-oriented “each and every exposure above background level” theories to serve as proof in low-dose cases. They similarly did not foresee a litigation that included friction, gasket, encapsulated, or consumer products. Because of the numbers of plaintiffs, defendants, and dollars, mass tort litigation tends to serve as an impetus for change.

### Conclusion

Recent scientific developments and expected regulatory changes will ensure an increasing number of formaldehyde cases. The ubiquitous nature of the chemical ensures a large pool of both plaintiffs and defendants. Media focus makes future legislation, litigation, and controversy a certainty until the chemical is removed from products. The recent plummet of Lumber Liquidator stock prices because of a single news story highlights the dangers that this litigation poses to corporate defendants. However, the lack of a unique signature disease, the presence of alternative causations for the diseases currently claimed, and the lack of bio-persistence of the chemical suggests that this toxic tort arena will reach neither the heights, nor the lows, of asbestos litigation. 