

Potential Insurance Coverage Issues Arising from Nanotechnology: Big Risks Could Come in Small Packages

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ABSTRACT

Businesses involved with nanotechnology should undertake risk management that assesses the potential losses that could arise and develop a broad insurance coverage program that takes these risks into account. Some of the types of claims that should be considered are: occupational hazard, property, business interruption, environmental, products liability, intellectual property, errors & omissions, and directors & officers. Many insurers are fearful that nanotechnology risks will not become apparent until the future, and may manifest themselves in claims of huge proportions. Most are carefully monitoring nanotechnology and taking a cautious approach toward insuring entities. One insurer has sought to limit coverage for certain nanotechnology risks while another recently introduced a product specifically aimed towards insuring nanotechnology risks. Given the changing marketplace, addressing insurance coverage issues early can help avoid big problems in the future.

Keywords: Insurance, Coverage, Risk, Claims, Losses

1 INSURANCE OVERVIEW

Put simply, insurance is financial protection against loss or harm. Risk transfer is not a new concept. Even ancient civilizations recognized the benefits of managing risk and took steps to transfer or distribute risk in order to minimize loss. Although insurance has evolved into a sophisticated international industry, the basic premise upon which it was founded remains the same - it is simply a tool to shift risk from one party to others that is made possible by spreading the risk and averaging the cost among many.

Insurance policies generally involve two types of coverage: first-party and third-party. First-party coverage generally provides protection against loss suffered by the insured to its property, business, and physical assets. Most people are familiar with first-party insurance from their own experience with automobile, fire, property, life, and health insurance.

Third-party coverage involves protection for claims against the insured brought by third-parties for injury or damage to their property or person caused by the insured (e.g., comprehensive general liability, directors and

officers, and employment practices liability insurance). Third-party (or liability) insurance is important because it usually imposes two separate obligations on the insurer: (1) to indemnify its insured against third party claims covered by the policy (by settling the claim or paying any judgment against the insured); and (2) to defend such claims against its insured (by furnishing competent counsel and paying attorney fees and costs). Defense of third party claims is as important to the insured (sometimes more important) as indemnification because substantial costs may be incurred to defend any lawsuit, even frivolous claims.

Both first-party and third-party insurance are important considerations to those involved in nanotechnology. As with any new technology, it is difficult to know with any certainty how nanotechnology will be used and all of the potential applications for this highly multidisciplinary field. At this point, the possible applications of nanotechnology seem limitless and span across a wide variety of industries including manufacturing, agricultural, environmental, pharmaceutical, health care, security, information technology, communications, energy, chemicals and even space exploration. However, coinciding with the broad range of technologies and potential applications encompassed by nanotechnology is a myriad of potential liability risks and loss scenarios. Moreover, because of the unique characteristics of nanotechnology, risk assessment presents novel challenges.

2 RISK ASSESSMENT CHALLENGES PRESENTED BY NANOTECHNOLOGY

There are numerous ways in which nanoparticles may be dispersed into the environment. Such releases could occur at virtually every phase of a product's life. For example, during the manufacturing process, laboratories and manufacturing plants could intentionally release byproduct nanoparticles into the air, water or soil. Additionally, nanoparticles could be released to the environment during product storage or transportation. Product use itself could result in dispersal of nanoparticles into the environment. Finally, after the life of the product, waste management and disposal procedures could result in dispersal of nanoparticles.

Because of the diminutive size of the particles, as well as difficulty in identifying and characterizing such particles,

accidental releases could occur and go undetected. Moreover, nanomaterials show very different physical, chemical, and biological properties from the properties of individual atoms and molecules or bulk matter. Accordingly, the adverse effects of nanoparticles likely cannot be predicted (or derived) from the known toxicity of bulk materials with similar chemical composition and surface properties. Thus, the current state of knowledge for nanoparticle hazards is replete with unknown factors such as: hazards of newly engineered particles, their interaction with contaminants or other substances, methods of exposure, speed of migration, methods of detection and measurement, and effectiveness of control.

In addition to the fact that dispersal of nanoparticles into the environment is likely inevitable, the affect of these particles on the environment and human health is unknown, and may be unknown for years. Nanoparticles could be a new category of potentially toxic substances, while perhaps not fitting within any more traditional or commonly used definition of the term “toxic.” Further adding to the difficulty in assessing possible nanotechnology risks is that the explosive growth of nanotechnology has outpaced the development of regulations, a general consensus on safety controls or even a uniform terminology.

Accordingly, although nanotechnology may yield widespread societal benefits, the potential loss scenarios could go far beyond anything experienced to date and could bring about a new dimension in personal injury, property damage and third-party liability risks. Therefore, although it is not an easy task, entities involved with nanotechnology should thoroughly assess potential risks and take steps to procure insurance coverage or employ other risk-shifting mechanisms to protect against losses.

3 TYPES OF CLAIMS

Because nanotechnology spans a broad array of disciplines and industries, a wide variety of types of insurance coverage could be impacted by claims arising out of nanotechnology. As stated above, problems arising out of nanotechnology could come up at virtually every stage of a product’s life. Thus, virtually every type of insurance could be impacted by nanotechnology risks. A brief summary of some of the claims that could arise out of nanotechnology is set forth below.

3.1 Occupational Hazard Claims

As an initial matter, the workplace – such as a research laboratory, a manufacturing facility or any other facility which processes, uses or disposes of nanomaterials - is one area subject to hazards. Occupational hazards in the form of exposure of workers arising from the research, development and production of nanoparticles is an area of concern. In the event that industrial accidents occur or

adverse health effects are discovered as a result of working with particular nanoparticles, among other things, bodily injury, negligence claims for unsafe work place and inadequate worker protection claims, could be asserted against an employer.

To protect employers from lawsuits resulting from workplace accidents and to provide medical care and compensation for lost income to employees hurt in workplace accidents, in almost every state, businesses are required by statute to implement some form of workers’ compensation coverage. Workers’ compensation insurance covers workers injured on the job, whether they are injured on the workplace premises or elsewhere. It also covers work-related illnesses.

There are numerous vehicles for workers’ compensation and they vary in design, degree of service and application. For example, employers can buy a traditional insurance policy where the insurance company’s claim department manages claims directly. On the other end of the spectrum, employers can choose to self-insure, which involves setting aside an amount of money to provide for any losses that occur and making a formal decision to retain risk rather than to insure it. Other programs use retrospective premium plans which provide that instead of paying a premium up front, the final premium is based on the insured’s actual loss experience during the policy term, sometimes subject to a minimum and maximum premium, with the final premium determined by a formula. Under this type of plan, the current year’s premium is based partially (or wholly) on that year’s losses, although the premium adjustments may take months or years beyond the current year’s expiration date. The rating formula is guaranteed in the insurance contract and a company can be faced with significant amounts in retrospective premiums years after the policy period.

Having broad workers’ compensation coverage in place is important for a business engaged in nanotechnology. The type of workers’ compensation program to be implemented by an employer involves making a cost-benefit analysis. In addition, it may involve decisions concerning the operation of a company such as to how much of the claims handling process to keep in-house. Because companies involved with nanotechnology may be confronted with higher workers’ compensation risks, costs and ratings, this is an area that should be given high priority.

3.2 Property and Business Interruption Claims

Property insurance policies generally provide coverage for damage to real property that is identified in the policy. Obviously, it is important to protect a company’s physical property and improvements in the event of a natural disaster or other catastrophic incident.

The losses covered by property insurance policies are often and typically weather-related. "All risk" policies cover all causes of loss or "perils" not expressly excluded in the policy. In contrast, "multi-peril" and "named peril" policies provide coverage only for those causes of loss specifically identified as being covered. Because these policies may explicitly include or exclude perils, or a peril arguably may fall within another, broader peril that is itself either included or excluded, the language of each policy should be reviewed carefully to determine what losses each policy covers.

In particular, with respect to nanotechnology in particular, insurers are considering fire to be a potential area of risk due to the small size of particles and their explosive potential. Thus, it is important to ascertain whether policies have limitations or exclusions that may apply to fire losses.

An additional consideration is coverage for losses from "interruption of business" resulting from damage to or destruction of the property. Business interruption insurance provides coverage for the loss of business income while the business is unable to function due to a peril covered under the policy. The purpose of business interruption insurance is to put the insured in the same position it would have been had there been no disruption to its business. Business interruption insurance is often included within broad first-party property policies, but can more broadly reflect a variety of specific types of insurance coverage that an insured can purchase as part of, in conjunction with, or separate from property policies in order to protect itself from economic losses. There are a variety of policy forms available that provide different types of coverage with different measures of recovery.

3.3 Environmental-Related Claims

Having been hit hard by the asbestos, environmental and toxic tort insurance liabilities in the United States, many insurers are fearful that nanotechnology risks will not become apparent until the future, and may manifest themselves in claims of enormous magnitude. These claims are replete with examples of how cutting-edge technology can later be determined to be hazardous to human health and the environment.

Because science is continuously evolving, as with any new technology, there is a possibility that, similar to the asbestos, environmental and toxic tort suits that have become so prevalent, issues arising out of nanotechnology will not become apparent until years or even decades after such nanoparticles have been dispersed. This could result in a flood of "long tail" claims being asserted against a policyholder.

Upon becoming subject to claims arising from past operations, many policyholders have looked to their historical coverage programs (or that of predecessor entities), and in particular, comprehensive general liability ("CGL") policies, for relief. CGL policies are a broad form of coverage that obligate an insurer to defend and indemnify an insured with respect to claims and liabilities covered by the policy. Since at least 1966, almost all liability policies were written on an "occurrence" basis. "Occurrence" policies provide coverage for bodily injury or property damage that occurs within the policy period, regardless of when a claim is asserted against the insured for liability. Thus, under an occurrence based CGL policy, an insurer may be liable for "bodily injury" or "property damage" where the actual injury or damage may not be apparent for years or decades after the policy period has expired.

In the event that "long tail" claims are asserted against entities utilizing nanotechnology as certain materials are found to be hazardous to the health and the environment, policyholders may find that they are insured against such claims under their CGL policies. In response, insurers may assert that certain exclusions, such as the so-called "pollution exclusion" or other policy language apply to limit or preclude coverage. Moreover, some reinsurers have recommended "claims made" coverage (which is triggered when a claim is first asserted against the insured during the policy period, thus, there is no coverage once the period has expired) and limiting language regarding the definition of "occurrence" in order to preclude coverage for "long tail" claims. However, as with any coverage issue, the facts of each case and the actual policy language will dictate whether coverage exists. Nevertheless, it is important for businesses to be aware of such issues and to secure the broadest coverage possible in order to minimize any potential coverage disputes.

3.4 Products Liability, Intellectual Property, Errors & Omissions and Directors & Officers Claims

Products liability claims could arise in any product manufactured using nanotechnology. Similarly, products utilizing nanotechnology could be the subject of extensive product recalls. Accordingly, coverage for these types of claims should be considered.

Nanotechnology offers many opportunities for the development of intellectual property rights in the forms of patents, copyrights, trade secrets and trademarks. Intellectual property rights may be a company's most valuable asset. However, the nature of nanotechnology may give rise to questions such as what is legally protectable (e.g., patentable/copyrightable) in the nanotechnology environment and how to categorize certain products. Such fundamental issues may give rise to

disputes involving nanotechnology intellectual property issues. Along these lines, most companies lack the financial resources to engage in costly long term patent litigation yet preservation of those rights could be essential to the survival of the company. Thus, coverage for intellectual property claims could keep a company in business.

Because of the many potential uses of nanotechnology in the medical field, professional liability and medical malpractice claims could arise, impacting professional liability and errors and omissions coverage. Further, suits involving directors and officers could arise in a number of ways and securities claims are also possible. Thus, directors' and officers' coverage is an important consideration.

4 STEPS BEING TAKEN BY THE INSURANCE INDUSTRY

At the present time, insurers are generally carefully monitoring nanotechnology, including keeping a close watch on regulatory proposals around the world. Once again, the primary concern of the insurance industry is that nanotechnology will "become the next asbestos" and will result in a flood of "long tail" claims. For example, in 2007, Lloyds of London Emerging Risks Team published a report on nanotechnology risks which, among other things, analogizes carbon nanotubes to asbestos fibers.[1] The Lloyd's Report recognizes that nanotechnology could have tremendous societal benefits but it cautions other insurers that "this is perhaps one of the great dangers; because the benefits are so seductive society may rush to capitalize on them before adequately assessing safety." [2]

Taking an overly cautious approach, in September 2008, Insurance Services Office ("ISO"), a provider of data, underwriting, risk management and other services to insurers, came out with a Nanotubes and Nanotechnology Exclusion. This exclusion has not been widely adopted by insurers and, to date, only one insurer in the United States, Continental Western Insurance Group, has issued a purported nano-specific commercial insurance exclusion. There are numerous issues concerning the definitions and overall viability of this exclusion and other insurers have not followed this practice.

Rather, several insurers are focusing on trying to better understand nano-risk exposure and weigh in on regulatory debates. Moreover, some insurers view nanotechnology as an opportunity to grow their own book of business. Setting aside whether nano-specific insurance products are necessary in light of the existence of CGL policies and other broad coverages which already encompass risks arising from nanotechnology, some insurers are marketing specialty products geared toward the nanotechnology market.

For instance, Zurich North America has partnered with Intertox, a health-based research and consulting firm in Seattle, Washington, with respect to nanotechnology issues. [3] Zurich, in conjunction with Intertox, has developed the Zurich Nanotechnology Exposure Protocol ("ZNEP") a web-based computer software product to help Zurich's customers identify risks regarding the use of nanoparticles. [4] Similarly, Lexington Insurance Company recently introduced "LexNanoShield," which is being marketed as "integrated liability coverage and an array of risk management services to help those insureds manufacturing, distributing, or using nanoparticles or nanomaterials assess and manage their products liability exposures." [5] Other insurers will no doubt come out with competing products as nanotechnology continues to grow.

5 CONCLUSION

Nanotechnology is a developing area with a continuously evolving landscape. Businesses involved with nanotechnology should undertake risk management that assesses the potential losses that could arise and develop a broad insurance coverage program that protects the company as well as individual employees, officers and directors. In today's climate with a high level of scrutiny on the actions of companies as well as their officers and directors, protection of individuals from business-related risk exposures may be an important factor in hiring and retaining the best employees. Accordingly, it is important for such businesses to conduct meaningful risk management and familiarize themselves with their insurance coverage programs to avoid having big, uninsured problems if they are confronted with losses arising from nanoscale materials.

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