FIDUCIARY GUIDE TO TOXIC CHEMICAL RISK

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The Investor Environmental Health Network (IEHN) is a collaborative partnership of institutional investors, advised by non-governmental organizations, concerned about the market and health risks associated with corporate toxics policies. It serves as an informational resource and secretariat for investors working to reduce portfolio risk related to toxics. **www.iehn.org**

In July 2005, *The Wall Street Journal* published a front page story captioned "Common Industrial Chemicals in Tiny Doses Raise Health Issue"[1] and the next month *USA Today* published a lengthy feature story entitled "Are Our Products Our Enemy?"[2] These two articles represent the tip of an iceberg of growing scientific concern about the impact on human health of relatively small amounts of chemicals in everyday products.

Researchers are increasingly detecting scores of these substances in human blood, breast milk, and amniotic fluid, and scientists are increasingly recognizing the particular vulnerability of fetuses and young children to them. These and related findings are contributing to rising awareness that the strategic choices businesses make about managing toxic chemicals in their products can have major financial consequences. As DuPont has been discovering from lawsuits and government enforcement actions surrounding its management of a toxic chemical used to produce Teflon®, toxic hazards can lead to sizeable financial and reputational damage.[3] Conversely, both General Electric's landmark Ecomagination[4] program and Wal-Mart's Smart Products Initiative[5] reflect the growing recognition that producing and marketing less toxic products provide significant business opportunities.

Companies' strategic choices in turn have implications for individuals, governments, and individual and institutional investors. Toxic exposures can impose costly burdens on both individual budgets and on government educational and health budgets. Poor corporate management of toxic hazards can increase risks for investors and burden share performance, while corporate efforts to minimize or avoid exposures, or to offer safer alternatives, can benefit corporate bottom lines and potentially reward investors.

This **Fiduciary Guide to Toxic Chemical Risk**

In Section Two, **Risks to Shareholder Value from Corporate Toxic Chemicals Policies,** Richard A. Liroff, founder and director of the Investor Environmental Health Network, and Tim Little, Executive Director of the Rose Foundation, profile examples of specific costs and/or implications for shareholder value from companies' toxic footprints. As a result of emerging science, concern is growing about toxic exposures, and the related financial exposures associated with toxic chemicals in products. Scientists historically have been fond of saying that "the dose makes the poison," but they are increasingly recognizing instead that "the dose and the timing make the poison." The human fetus undergoes a dramatic transformation during its nine months in the womb, developing a brain and nervous system, reproductive organs, an immune system, and myriad other systems and parts. The entire process is driven by minute amounts of chemicals delivering developmental messages at just the right place and just the right time. It doesn't take much of a foreign chemical at the wrong place at the wrong time to foul up the process, potentially causing learning and developmental disabilities, organ damage, and possibly increased susceptibility to health problems later in life.

The exquisite sensitivity of fetal development to toxic intruders has been summarized by biologist Dr. Sandra Steingraber this way: "Exposures that produce only transient effects in adult brains can

In fact, it may be that investors or trustees should not hold an image of icebergs in mind when considering the financial risks of toxics. After all, an iceberg may be identified on radar and avoided. The growing waves of scientific interest in toxic chemicals may perhaps be better likened to tsunamis poised to strike vulnerable companies and their shareholders. In such cases, the window of opportunity may be extremely limited for companies, shareholders, and anyone else in a fiduciary position to move to financial higher ground. Just as incredibly small doses of toxic chemicals may poison a fetus, seemingly small amounts of toxic risk can poison a portfolio. However, with careful planning and deliberate engagement designed to reduce toxic threats, companies and portfolios may safely ride out the storm.

Liroff and Little provide examples of both positive and negative consequences to business stemming from chemical exposure issues. The negative examples include an immediate 22% drop in Sherwin Williams' stock price related to news of an adverse jury verdict in a lead poisoning case in Rhode Island. Liroff and Little also profile companies that are gaining business share through astute "clean & green" positioning and marketing strategies. One such firm is C&A Floorcoverings, Inc., which has produced a new line of PVC-free carpets to answer health care giant Kaiser Permanente's call for green building products for its network of 30 hospitals and 431 medical buildings.

In Section Three, **Toxic Chemical Risk and Fiduciary Duty**, attorney Jonas Kron, an expert in fiduciary and shareholder law who serves as a U.S.-based consultant for the international law firm Freshfields Bruckhaus Deringer, summarizes the body of fiduciary law that permits fiduciaries to evaluate and respond to toxic threats as important environmental factors which may also have major social and governance dimensions (collectively referred to by Freshfields as ESG factors). Kron points out that some of the largest law firms in the world have definitively concluded that considering environmental, social and governance issues is at the core of the fiduciary Duty of Prudence, and he argues that it follows that fiduciaries have an affirmative duty to consider toxic chemical issues that impact corporate risk, return and shareholder value.

In particular, Kron highlights the need for fiduciaries to fully consider shareholder resolutions implicating environmental health risk as part of their overarching Duty to Monitor. Kron examines one of the cutting edge questions before institutional fiduciaries today—do they face an affirmative obligation to engage portfolio companies on toxics issues? Looking to the long-term nature of most institutional portfolios, Kron concludes the safe fiduciary course is to recognize that it may be prudent for portfolio companies to assume some level of short-term expense to address toxics issues, if these short-term expenditures position the company to increase the likelihood of maintaining long-term value through reduced liabilities or increased sustainability. He speculates that beneficiaries may well question future fiduciaries who do not act in the face of known or suspected product or historical toxic liabilities that threaten shareholder value, and closes by profiling how leading institutional investors and advisors are positioning themselves to respond to the toxic threat. This often includes revising their proxy voting guidelines to specifically address toxics issues and engaging portfolio companies on toxics issues.

We close with Section Four, **Addressing Toxic Chemicals: A Road Map for Fiduciaries**, in which Jane Ambachtsheer of Mercer Investment Consulting provides a comprehensive outline for fiduciary action to protect portfolio value from toxic threats. The roadmap is a comprehensive set of directions to guide investors in assessing and documenting their own understanding of the relationship between toxics and financial risk, and exploring these issues with investment managers and consultants. The section closes with a suggested series of steps to manage risk exposure and protect investment portfolios. Associated appendices outline the growing wave of recent shareholder activity on toxics issues, and provide a sample engagement letter that could be sent to selected portfolio companies.

by Rachel Massey

Mercury is an example of a chemical that is used in products and often released into the environment at the end of a product's useful life. In addition to the mercury releases through industrial operations such as coal fired power plants, the mercury in thermometers, blood pressure gauges, lights, switches, and other products can enter air and water when those products are discarded. Incineration of mercury-containing products releases mercury into the air. Eventually the mercury enters water sources, where it is taken up by aquatic organisms, concentrated as it rises through the food chain, and ultimately ingested by people when they eat fish. Mercury-containing products in landfills can also contaminate air and water.[16]

When we think of toxic exposures, we generally think of industrial pollutants that enter our air, water, or soil. However, a large portion of our toxic exposures actually come from products—ranging from cars to computers, from furniture to toys. People can be exposed to toxic chemicals in products either during the useful life of the product or at the point of disposal. Toxic chemical exposures are associated with a range of illnesses and disabilities, including cancer, asthma, neurobehavioral disorders, reproductive disorders, and birth defects. Illnesses and disabilities, in turn, create economic costs. Some of these costs fall upon individual families; others are borne by insurance companies, state and local education systems, state health care systems, and other institutions.

Fetal, infant and childhood exposures to toxic chemicals in products are of particular concern. Babies and children eat more food, drink more water, and breathe more air per unit of body weight compared with adults, increasing their vulnerability and exposure to contaminants. Babies and children spend significant amounts of time indoors, play on the floor, and put objects in their mouths; all these behaviors can increase their exposure to toxic chemicals in the home. Their rapidly developing organ systems are highly vulnerable to damage. A toxic exposure during a critical window of developmental vulnerability can result in life-long disability or disease. In addition to the human suffering they cause, toxic exposures early in life can result in enormous economic costs over a period of decades. These costs can include the need for special education and on-going medical care, as well as reduced earnings.

Several recent studies serve as models and reference points for the information presented in this section. In particular, the present discussion draws heavily on analyses completed by Landrigan et al. (2002), Massey and Ackerman (2003), and Davies (2005).

A significant percentage of women of child-bearing age in the United States have blood mercury levels high enough to cause neurological damage in the developing fetus.[32] There is no known "safe" threshold for mercury exposure. In 2005, Trasande et al.[33] investigated the costs of illness and disability resulting from mercury exposure. The authors note that exposures result primarily from pregnant women's consumption of seafood contaminated with mercury. About 70% of this contamination results from anthropogenic (man-made) sources. The authors found that between about 317,000 and about 637,000 babies per year are born with cord blood mercury levels associated with loss of IQ. This IQ loss translates into lost productivity over the entire life of these children. The authors estimate the cost of this lost productivity at $8.7 billion annually in 2000 dollars, with a range from $2.2 to $43.8 billion. Of this amount, $1.3 billion is attributable specifically to coal-fired power plants located within the US. Incinerators burning mercury-containing products historically have been additional significant sources of mercury.

Other recent studies have considered an even wider range of social costs associated with child-

This section presents illustrative calculations of the costs (in 2006 dollars) of selected illnesses due to toxic exposures in California, Connecticut, and New York.[38] We use national estimates to derive estimates of disease costs at the state level, based on population percentages. California has 12.2% of the U.S. population, New York 6.5%, and Connecticut 1.2%. We then apply an environmentally attributable fraction (EAF) consistent with the EAFs used by Landrigan and his team in their 2002 study. These are 30% for asthma (range: 10-35%); 5% for cancer (range: 2-10%); 10% for neurobehavioral disorders not caused by lead exposure (range: 5-20%); and 100% for neurobehavioral disorders caused by lead exposure. It is worth noting that the estimated 5% EAF for cancer is very conservative.[39] Applying a larger environmentally attributable fraction would, of course, increase these numbers significantly.

An estimation exercise of this kind necessarily requires many assumptions. Therefore, we report the range of estimates while still attempting to provide an order-of-magnitude sense of the costs that result from toxic exposures. These figures do not reflect possible differences in levels of toxic exposures across states. But our goal in this discussion is not to produce a complete assessment of the environmentally attributable costs of these and other illnesses in these states, nor do we suggest a "silver bullet" analytical method that accurately captures all costs across all possible scenarios. Rather, we illustrate one reasonable approach to estimating these costs. These costs can impose a significant burden on state and local government budgets, as well as governmental and private and health benefit plans. These costs are particularly material information for pension funds concerned with the health and retirement security of their beneficiaries. The cost projections offered in this paper may be considered very conservative and represent more or less "threshold numbers" —a foundation on which fiduciaries and other investors can rest in assessing risk rather than a ceiling expressing maximum risk exposure.

Disease	California	Connecticut	New York	Totals (by disease)
Childhood Asthma	$289 (range: $96 - $338)	$28 (range: $9 - $33)	$154 (range: $51 - $181)	**$471**
Childhood and Adult Cancers	$1,260 (range: $503 - $2,510)	$122 (range: $49 - $244)	$670 (range: $268 - $1,340)	**$2,052**
Neurobehavioral Disorders (non-lead)	$1,390 (range: $700 - $2,780)	$140 (range: $70 - $270)	$740 (range: $370 - $1,480)	**$2,270**
Neurobehavioral Disorders (lead-only)	$6,560	$637	$3,500	**$10,697**
Totals (by state)	**$9,499**	**$927**	**$5,064**	**$15,490**

*Costs are “best” estimates within the ranges shown.

California
For California, we estimate annual environmentally attributable costs of childhood asthma at $289 million (range: $96 to $338 million);[40] direct and indirect costs of childhood and adult cancer at $1.3 billion (range: $500 million to $2.5 billion); and neurobehavioral disorders not attributable to lead exposure at $1.4 billion (range: $700 million to $2.8 billion). For lead exposure, we estimate a cost of $6.6 billion in future earnings foregone.

Connecticut
For Connecticut, we estimate annual environmentally attributable costs of childhood asthma at $28 million (range: $9 to $33 million); direct and indirect costs of childhood and adult cancer at $122 million (range: $49 to $244 million); and neurobehavioral disorders not attributable to lead exposure at $140 million (range: $70 to $270 million). If we look separately at costs of lead exposure, we estimate a cost of $637 million in future earnings foregone.

New York
For the State of New York we estimate annual environmentally attributable costs of childhood asthma at $154 million (range: $51 to $180 million); direct and indirect costs of childhood and adult cancer at $670 million (range: $268 million to $1.34 billion); and neurobehavioral disorders not attributable to lead exposure at $740 million (range: $370 million to $1.5 billion). For lead exposure, we estimate a cost of $3.5 billion in future earnings foregone.

While it is beyond the scope of this paper to fully examine all of the financial impacts that flow from toxic-related disease and disability,

In addition to significant economic impact at the national or state level, corporate financial well-being is threatened by at least three types of liability risks associated with chemicals in products. These include litigation and other direct liability risks, reputational risks, and market exclusion risks.

Not surprisingly, investors frequently focus on direct and measurable risks such as those that may flow from product liability, and regulatory or shareholder lawsuits, because these are the risks that make headlines, often impose sizeable costs on companies, and can have a dramatic impact on share prices on a short-term (and sometimes long-term) basis. Lead paint litigation offers a recent example. On February 22, 2006, shares of Sherwin-Williams fell as much as 22% following reports that a Rhode Island jury had found the company guilty of creating a public nuisance that was poisoning children.[47] Until that case, the company had been largely successful in lead litigation. The stock has largely recovered from its steep drop, and the jury verdict is still being contested, but the litigation cloud continues to hang over the company.

While Merck's cautionary lesson is a pharmaceutical rather than a toxic chemical issue, cosmetics and personal care industry investors concerned about potential toxics liability should be concerned that the same agency that had oversight over Vioxx, the U.S Food and Drug Administration (FDA), also regulates cosmetics. Most ominous for risk-averse investors, the Vioxx controversy, including the allegations that Merck's management was slow to react to the adverse health data and may have even deliberately withheld liability information, occurred under the FDA's drug regulation regime—which is much more stringent than the cosmetic and personal care product self-regulatory safety process. If problems of the magnitude of Vioxx could slip through the FDA's relatively tight drug screening process, what kind of product liabilities are passing unchecked through the looser cosmetics regulatory screens? The significant and unanswered questions about the health and financial liabilities that may be associated with personal care products represent real threats to reputational value, brand, franchise, market share, and profitability in the cosmetics industry. And, just as they did with Merck, investors may find themselves asking—what did cosmetics company executives know and when did they know it?

Reputational risks from toxic chemicals are also a concern to companies. A quote from a Wharton School advertisement for executive education succinctly captures this idea: "…no CEO stands up and says, 'The key assets of my company are plant, building, land, and inventory…' They say, 'It's my brand and my customers.'"[64] The sensitivity of corporations to reputational damage is signaled by some prominent cosmetics companies agreeing to reformulate cosmetics when their toxic components are highlighted by the Breast Cancer Fund and other campaigners for safe cosmetics, and by the DuPont Company running full page advertisements in the New York Times and other prominent publications featuring frying pans and a headline, "Teflon® Non-Stick Coating is Safe."[65]

Market exclusion constitutes a third form of risk to shareholder value. Products conta45nu3cr(s)-5( )i. 361 5

Like the double-headed Roman door warden Janus, who guarded entrances by simultaneously considering both the past and the future, environmentally preferable purchasing programs may exclude from the marketplace products with a history of toxicity, while also creating fresh market opportunities for new products that are toxicologically safer. For example, in March 2006, the International Sanitary Supply Association published a 40-page report listing numerous state and local government green cleaning initiatives that serve to exclude from procurement programs cleaning products containing certain chemicals.[67] This would appear to be a response to recent developments in the U.S. healthcare sector that illustrate the market consequences of emerging business-to-business requirements for safer products.

One of the drivers of this change is Kaiser Permanente, the largest nonprofit health plan in the United States, serving 8.2 million members. Kaiser operates 30 hospitals and 431 medical buildings, and had operating revenues of $28 billion in 2004. It anticipates devoting $21 billion through 2012 to capital expenditures, including millions of square feet of new office space. Kaiser has set out to eliminate or reduce hazards to human health from chemicals that have been relied on to provide healthcare. The company has been working to "green" its buildings, working with manufacturers to produce cleaner, less toxic materials. The company has focused on phasing out PVC (polyvinyl chloride), eliminating mercury, and removing DEHP (di-ethylhexyl phthalate) from its neonatal units. In 2004 Kaiser launched a new chemical policy that calls for avoiding the use of carcinogens, mutagens, and reproductive toxicants, and persistent, bioaccumulative, toxic chemicals.[68] While Kaiser's new policy excluded some companies from doing business with it, it opened potentially lucrative new business relationships with other vendors and suppliers, such as C&A Floorcoverings, Inc. Just a few months after Kaiser announced its change, C&A responded by announcing a new PVC-free line of carpets that uses an alternative plastic material for backing.[69] Kaiser rewarded the company with a three-year contract. Likewise, in response to a request from Kaiser-Permanente, Construction Specialties, Inc. developed a new line of interior wall materials free of PVC, brominated flame retardants, phthalates, and precursors of dioxins and furans.[70]

Kaiser-Permanente is joined by others in the healthcare community in its quest for safer healthcare products. Catholic Healthcare West, a system of 40 hospitals and medical centers in the western United States, awarded B. Braun Medical Inc. a five-year $70 million contract to deliver PVC/DEHP-free products,

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By Jonas Kron

Despite the multitude of examples where financial costs and/or benefits clearly may correspond to the size of a company's toxic footprint, there continues to be a high degree of uncertainty in the minds of many fiduciaries about the prudence of considering these issues and appropriate methods for engagement. This section answers the question: Can fiduciaries address these concerns in light of their responsibilities to beneficiaries?

The short answer from some of the most respected legal authorities in the world is a loud, "Yes." Recently the world's third largest law firm, Freshfields Bruckhaus Deringer, in an October 2005 report written for the United Nations Environment Programme Finance Initiative (UNEP-FI), concluded that integrating environmental considerations into investment decisions is clearly permissible and arguably required.[74] This is in keeping with the conclusion reached by the prestigious international corporate law firm of Baker & McKenzie in 2000.[75]

In its October 2005 report, Freshfields Bruckhaus Deringer concluded that integrating environmental considerations into investment decisions is required when they are relevant to investment management. This thorough and rigorous analysis of United States fiduciary law applies to the specific issues raised by toxic chemicals and environmental health. It logically follows that fiduciaries should incorporate information regarding a portfolio company's production and use of toxic chemicals and the impact of that activity on human health when it impacts value, risk, and return.

Freshfields' conclusion follows the 2000 report from Baker & McKenzie which stated that integrating ESG issues into investment decisions is consistent with fiduciary duties. These statements from two highly respected law firms demonstrate how this standard has become so firmly established. Add to this the recently released UNEP Principles for Responsible Investment, which are now backed by more than $4 trillion in assets, and it is evident that it is prudent to integrate ESG issues into investment management decisions.[76]

It is becoming increasingly clear that a growing number of mainstream investors are following this legal advice and are moving towards the incorporation of ESG considerations into investment decisions. For example, this past year, Citigroup subsidiary Smith Barney issued a report that assessed sustainability issues across 28 sectors.[77] In comparison, Goldman Sachs took a quantitative approach by correlating 42 ESG criteria in the energy sector to financial performance and concluded that these criteria are important drivers of future performance and valuation.[78] UBS took the approach of seeking to quantify that which is qualitative by establishing a framework to measure corporate social liabilities across nine sectors in its socially responsible investing (SRI) report.[79] Finally, Merrill Lynch partnered with an environmental nongovernmental organization—the World Resources Institute—to produce a report analyzing investment opportunities due to climate change in the auto sector, making specific stock recommendations on seven companies.[80]

Under existing law fiduciaries must consider the facts and circumstances presented by shareholder resolutions. Specifically:

- *"the fiduciary act of managing plan assets which are shares of corporate stock . . . includes the voting of proxies appurtenant to those shares of stock."* [86]
- *a fiduciary who "fails to vote, or casts a vote without considering the impact of the question, or votes blindly with management" will violate the rule of prudence.*[87]

In fact, many fiduciaries are beginning to assess and evaluate

Institutional Shareholder Services

The wave of 2006 toxics-related resolutions also spurred proxy advisors such as Institutional Shareholder Services (ISS) to revisit their policies regarding the prudence of considering environmental factors—specifically toxic-related risks

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By Jane Ambachtsheer

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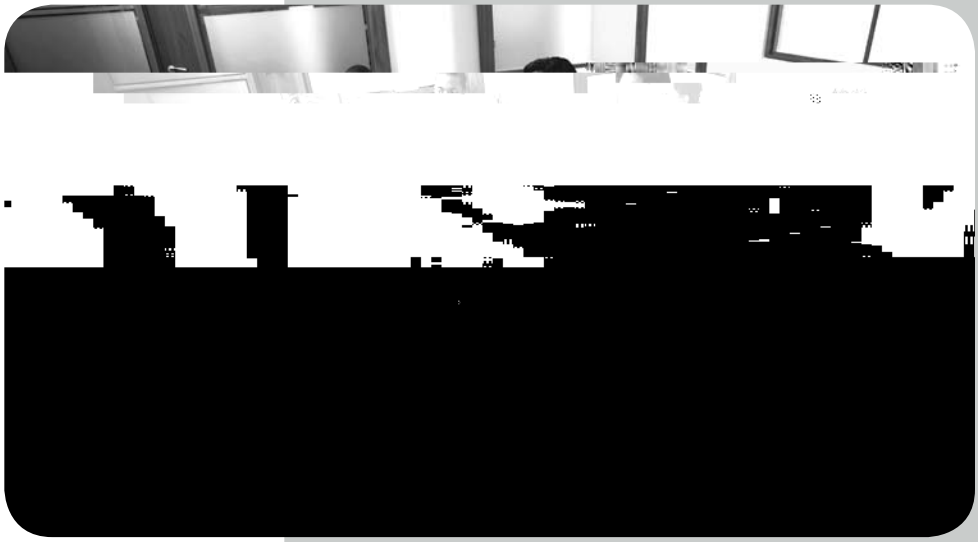
In the previous sections we have explored why toxic chemical risk is an important:

- health issue,
- financial issue, and
- fiduciary issue.

With this information in hand (and see box on page 28 —“The Breadth of ‘Chemical Risk’ to Portfolios”) the next step is to determine what your fund is doing or can do to address toxic chemical risk arising from toxic chemicals in products and associated supply chains. This section takes a fiduciary through a three-step process of assessment, exploration, and action.



Richard A. Liroff

Investors are increasingly recognizing the breadth of the risk to portfolios from "climate risk." From insurance companies to power plants to coastal property owners, climate risk cuts a broad swath across portfolios. Careful examination of emerging regulatory structures and shifting market demand suggests that the breadth of chemical risk may be equally broad.

The breadth stems from the cross-cutting and synergistic effects of new regulations targeting specific classes of products combined with new regulations targeting specific classes of chemicals. While frequently launched with a national or regional focus, such as regulations in the European Union, these can have global impact resonating up and down supply webs in diverse economic sectors. Their effect is multiplied further by forward-looking sustainability and "beyond compliance" endeavors from leading corporations that effectively shut various chemicals and products out of major procurements.

The most noteworthy examples come from the European Union. These include, for example:

- **The EU's Restriction of Hazardous Substances (RoHS) Directiv**e requires member states to restrict the use of six specific chemicals in electrical and electronic products placed on the market after July 2006. (Wal-Mart has declared that all computers sold in its stores in the United States must comply with these European standards, and adoption of RoHS has stimulated similar requirements adopted by China.)

- **The EU's Cosmetics Directive**, which outlaws specific cancer- and mutation-causing chemicals and reproductive toxicants in cosmetics and personal care products. Such major cosmetics companies as Revlon and L'Oreal have signaled they will comply with these requirements globally.

- **The EU's Waste Electrical and Electronics Equipment (WEEE) Directive** makes producers of electrical and electronic products responsible for the collection, treatment, recovery, and disposal of all waste electrical and electronic equipment. Beginning December 2006, producers will be required to meet recycling and recovery targets. These requirements will impact producers' supply chains, since producers will have an incentive to choose less hazardous and more easily recycled materials.

- The EU's new **Registration, Evaluation and Authorization of Chemicals (REACH)** regulation, enacted in December 2006, will promote substitution of safer chemicals for those chemicals that persist and build up (bioaccumulate) in the environment.

European enactments are increasingly being mimicked by California and other states, filling the void created by a quiescent federal

Questions to ask yourself

Before discussing these issues with other people and organizations, you should assess your understanding of chemical risk and how you are managing it. Some questions that you can ask yourself include:

- **Is there the potential that chemical risk could have material impact** on the assets entrusted to our care?
- **How significant is the impact of chemical risk** likely to be on our portfolio?
- **Are we providing incentives** (via our mandates and fees spent) for the risks associated with toxic chemicals to be addressed?
- **Are our concerns about toxic chemical risk such that we want to address it more actively?** Could we work together with other investors?
- **What are the appropriate resources** to dedicate to this issue?
- **Should we identify an individual to have responsibility** for keeping us abreast of chemical risk? Is there an appropriate person?

The outcome of this discussion should help you determine which of the steps on the following pages may be most suitable for you, and to identify an individual or group to take responsibility for this issue. Many trustee groups will likely find that, if there is consensus that chemical risk could materially impact the assets under their care, they do not yet have a formal statement in place about this view, nor have they reflected it in their investment policy. It may be that as a trustee group you lack the tools to be able to answer these questions. If this is the case, then external advice could be sought (e.g., from your investment consultant or specialist groups).

A. Develop a policy guidance statement on toxic risk

Investment positions (or investment beliefs) form the foundation of investment decision making. To determine your investment position with respect to toxic chemicals, you should have a discussion at the board/committee level. Such a discussion would ideally lead to the development of a formal statement, for example:

> **We believe that toxic chemicals have the potential to pose a real and material risk to the financial performance** of our investments (particularly over the long term), and therefore the returns that the fund will make.

Having a position around toxic chemicals is important, as it provides the framework for further decisions and actions. Once formalized, your position could be made public and shared with relevant parties.

B. Consider your time horizon

By nature, many institutional investors are long-term investors, typically with a time horizon of more than five years. Impacts of toxic chemicals will be felt most acutely over the long-term, and are therefore most relevant to the management of the assets being invested over this term. Associated performance monitoring frameworks, evaluation criteria, and manager fee structures should be clearly defined to align the interests between trustee groups and investment managers.

C. Enhance your investment policy

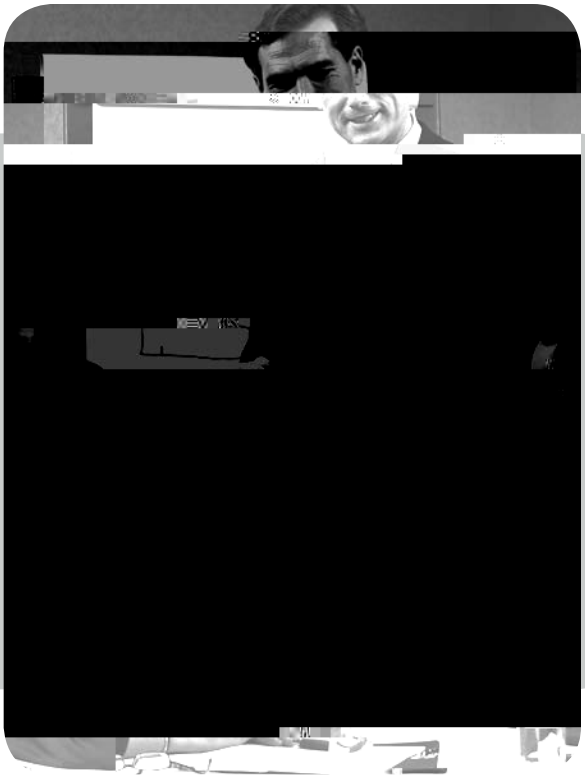
Once you have (1) developed an investment position on toxic chemicals and environmental health and (2) determined your time horizon, you should take the important third step of reviewing your investment policies to ensure that the policies address both issues appropriately. This enhanced policy can be made public and shared with relevant parties.

In addition to the steps suggested above, there are various actions trustees can take to address toxic chemical risk. Many of these options can be done simultaneously, consecutively, or in place of each other. Remember, addressing toxic chemical risk is an ongoing process, which you can take one step at a time.

Be an active owner
There are increasing numbers of public pension funds that have been taking an active role with their investments. The pension funds of California, New York State, New York City, and Connecticut are the most obvious examples. But there has been heightened awareness and activity at other funds such as Ohio, Maryland, Florida, Vermont, and Minnesota.

Some of the actions taken by these funds include:

- **File or co-file shareholder resolutions:** In 2005, US investors filed a record number of toxic chemical resolutions with corporations. In total, 11 resolutions requested reports on the use of safer substitutes and chemical security issues.
- **Develop proxy voting guidelines:** (either directly or with an advisor) which reflect an active approach towards addressing toxic chemicals and related risks. Consider optimal ways for your fund to implement its proxy voting guidelines (via fund managers, or external proxy voting services). Participate in voting decisions and/or monitor that votes are effectively cast per your approach. Publish your voting record.



- **Participate in shareholder engagement activities:** This could be:
  - Directly with companies as an individual shareholder; or
  - In conjunction with other shareholders.

  (For those wishing to engage directly with companies as shareholders, a sample letter designed to be sent singly or by multiple signatories jointly is provided in Appendix 1. This could be a first step in soliciting information from portfolio companies.)
- **Encourage engagement:** Ask your fund manager to undertake engagement on toxic chemical risks and opportunities on behalf of your assets. If your fund manager is unable to provide engagement services directly, you may wish to consider an engagement overlay service, whereby you outsource the responsibility for active shareholding with investee companies to a third party provider.
- **Participate in the public policy debate.** Trustees are responsible for protecting the assets of their beneficiaries and, essentially, for ensuring the long-term security provided by these assets. In this role, it is valid for trustees to consider participating in the public policy debate around the use of toxic chemicals. Trustees can engage with policy makers to encourage policies that best meet the long-term interest of the economy and hence the long-term mandates in their care.
- **Encourage the sell-side.** Instruct your fund managers to allocate a proportion of your broker commissions to encourage the inclusion of what some label “extra financial issues” in broker analysis, and better research on issues like the use of toxic chemicals.

Review your portfolio holdings

There are clearly many actions that you can take to address toxic chemical risk. That said, not every approach will suit every investor. A number of factors will play into which approach is right for you, both in the short and longer term, such as:

- **The characteristics of the trustee group** (shared position on this issue, decision making process, and governance structure).

- **The characteristics of the fund in question** (asset size, funding status, maturity, asset allocation and investment approach, internal vs. external management, and monitoring).

- **The perspective of plan members and sponsor** (alignment with member views, and sponsor's sustainability policies—corporate, government, or other).

As a first step, the chair of the trustee group or investment committee should put the issue of toxic chemical risk on the agenda. Once trustees have familiarized themselves with the issues using this roadmap as a guide, they can discuss and determine which steps to take first, and formally allocate the appropriate time and budget (up-front, and ongoing) to meet their needs in addressing this important issue.

1. Has your company adopted any kind of “safer chemicals or safer products” policy committing you to eliminating certain specific toxic chemicals in the products you manufacture or retail by certain dates, even if some of these chemicals have not yet been formally banned or limited by regulators?

2. What procedures do you have in place to identify the chemicals in products or materials you procure from your supply chain? Are there discrete lists of chemicals that you seek to avoid when alternatives are available, that you’ve scheduled for phaseout, or for which you set concentration limits? To develop such lists, do you check just against published lists of regulated chemicals or do you look beyond these lists? Which published lists do you rely on?

3. What procedures do you have in place to identify the chemicals in materials provided by your suppliers? How do you audit or verify this information?

4. What kinds of guidelines or financial incentives does your company provide to its suppliers to encourage them to substitute safer chemicals or conduct research on safer chemicals?

5. What kinds of training or financial incentives does your company provide to its staff to encourage them to substitute safer chemicals or conduct research on safer chemicals?

6. Does your company have any kind of formal “Green Chemistry” Program?

7. Does your company have a policy to globally reformulate products to meet the toughest existing regional or national standards for chemicals? In other words, for example, if the EU or California ban certain chemicals in your products, do you reformulate to meet this standard in all your global markets?

8. In providing financial disclosures to investors, does your company summarize and analyze major new scientific findings in peer reviewed studies or by government sponsored bodies that signal health or environmental risks associated with materials in your products? Do you make future-oriented statements about how such findings, changing regulations, or environmentally preferable purchasing programs may positively or negatively influence the financial value of your company?

9. Do products you manufacture or retail contain lead, mercury, polyvinyl chloride, brominated

Apple Computer
Lead Shareholder: individual shareholder
Resolved: Shareholders request that the Board publish a report within six months of the 2007 annual meeting, at reasonable cost and omitting confidential information, on the feasibility of adopting a policy of becoming a leader in the use of safe materials, by eliminating persistent and bioaccumulative toxic chemicals, and all types of brominated flame retardants (BFRs) and polyvinyl chloride (PVC) plastics, in all Apple products, including an expeditious timetable to end the use of all BFRs and PVC.

CVS Corporation
Lead Shareholder: Boston Common Asset Management
Resolved: Shareholders request that the Board publish a report to shareholders on CVS policy on cosmetics safety, at reasonable expense and omitting proprietary information, by December 2007. This report should summarize which, if any, product lines or categories sold in CVS stores may be affected by the new cosmetics safety legislation and consumer trends described above, and any new initiatives or actions the management is taking to respond to this public policy challenge.

Investor Environmental Health Network:

www.iehn.org
Richard A. Liroff, Ph.D. 703 243-0085, info@iehn.org

IEHN Members

Adrian Dominican Sisters
http://www.adriansisters.org

As You Sow Foundation
http://www.asyousow.org/csr/shareholder.shtml

Boston Common Asset Management, LLC
http://www.bostoncommonasset.com/

Calvert Group, Ltd.
http://www.calvert.com/sri_648.html

Citizens Advisors, Inc.
http://www.citizensfunds.com/

Domini Social Investments, LLC
http://www.domini.com/

Green Century Capital Management, Inc.
http://www.greencentury.com/

Harrington Investments, Inc.
http://www.harringtoninvestments.com/

Inhance Investment Management, Inc.
http://www.realassets.ca/web_impact/engagement.html

Maryknoll Sisters
http://www.maryknoll.org/MARYKNOLL/SISTERS/missn.htm

Mercy Investment Program
http://www.m4ghoERS/missn.htm

Benchmarking Corporate Management of Safer Chemicals in Consumer Products - A Tool for Investors and Senior Executives by Richard A. Liroff. Corporate Environmental

For information on how manufacturing plants and product designers are moving to safer chemicals visit:
www.cleanproduction.org
www.bluegreen.org
www.mbdc.com
www.sustainableproduction.org
www.epa.gov/greenchemistry

(Excerpted from As You Sow, "The Power of the Proxy" [2005])

California Public Employees' Retirement System (CalPERS)
http://www.calpers-governance.org/principles/global/globalvoting.pdf

Connecticut State Pension Funds
http://www.state.ct.us/ott/proxyvotingpolicies.htm

State of Wisconsin Investment Board
http://www.swib.state.wi.us/proxyguide.asp

University of Wisconsin
http://www.uwsa.edu/tfunds/proxyvot.htm

As You Sow Foundation
www.asyousow.org
Conducts shareholder activism campaigns on behalf of institutional and NGO clients and produces annual "Guide to the Upcoming Proxy Season."

The Corporate Library
http://www.thecorporatelibrary.com
Highly-regarded corporate governance materials, news and financial analysis sections.

Corporate Monitoring
http://www.corpmon.com/Vote.htm
Shareholder activism site focusing on selected governance proposals and proposed SEC rule changes.

Council of Institutional Investors
http://www.cii.org/dcwascii/web.nsf/doc/index.cm
Provides general information and investment services to pension funds. They generally do not address social issues.

Friends of the Earth's Green Investments Program
http://www.foe.org
Features excellent online guide to shareholder activism: "Confronting Companies using Shareholder Power." Describes the basics of how to file, how to write a proposal, and strategic considerations when negotiating with companies.

Interfaith Center on Corporate Responsibility
http://www.iccr.org
Produced by the leading organization engaged in shareholder advocacy in the U.S, the site lists all shareholder proposals by religious institutional investors, and distributes issue backgrounders covering subjects like militarism, economic justice, AIDS, energy, genetically engineered foods, sweatshops, and corporate governance.

Proxy Information
http://www.proxyinformation.com
Web site developed by As You Sow Foundation to provide detailed information for investors and analysts on selected shareholder proposals and issues.

Responsible Wealth
http://www.responsiblewealth.com
Provides information on a variety of shareholder initiatives focusing on social equity issues.

Shareholder Action Network
http://www.shareholderaction.org
Features shareholder news and proposals, web resources, pre-written letters to CEOs, extensive links section on corporate accountability, and in-depth information on four targeted campaigns each year. Very extensive web resources with links to many shareholder advocacy sites.

Social Investment Forum
http://www.socialinvest.org
Association of Socially Responsible Investment (SRI) professionals and institutions. Reports on the SRI industry and pivotal initiatives; information on community investing, shareholder advocacy, and screening, and SRI trends and performance.

SocialFunds.com
http://www.socialfunds.com
Provides regular news updates and original journalism on screened investing, shareholder advocacy and community investing. Has a database of shareholder proposals, shareholder news, and SRI activities.

[1] Peter Waldman, "Common Industrial Chemicals in Tiny Doses Raise Health Issue", The Wall Street Journal, July 25, 2005, page A-1.

[2] Elizabeth Weise, "Are Our Products Our Enemy?" USA Today, August 3, 2005, Page D-1.

[3] DuPont's legal and reputational problems are signaled in, e.g., Marian Burros, "As Teflon Troubles Pile Up, DuPont Responds with Ads", The New York Times, February 8, 2006 (www.nytimes.com, accessed February 8, 2006), and Jerry Hirsch, "Safety Concerns May Stick to Teflon," The Los Angeles Times, February 14, 2006, www.latimes.com (accessed February 14, 2006).

[4] See. http://ge.ecomagination.com. GE is doubling its research investment in cleaner technologies by 2010, with a goal of doubling its profits from "Ecomagination" products and services at the same time.

[5] See http://walmartstores.com/GlobalWMStoresWeb/navigate.do?catg=355 (accessed July 11, 2006). Wal-Mart is providing its buyers with incentives and is developing scorecards to encourage suppliers to provide environmentally preferable products. See also Wal-Mart's preferred substances policy, www.walmartfacts.com/articles/4556.aspx (accessed January 8, 2007)

[6] Landrigan, P. J., C. B. Schechter, et al. (2002). "Environmental Pollutants and Disease in American Children: Estimates of Morbidity, Mortality, and Costs for Lead Poisoning, Asthma, Cancer, and Developmental Disabilities." Environmental Health Perspectives 110(7): 721-728.

[7] Massey, R. and F. Ackerman (2003). "Costs of Preventable Childhood Illness: The Price We Pay for Pollution." GDAE Working Paper 03-09.

[8] Davies, K. (2005). "How Much Do Environmental Diseases and Disabilities Cost?" Northwest Public Health.

[9] Kathleen Schuler et al, "The Price of Pollution: Cost Estimates of Environment-Related Childhood Disease in Minnesota," (Minneapolis and St. Paul, Minnesota: Institute for Agriculture and Trade Policy and the Minnesota Center for Environmental Advocacy, 2006), available at http://www.environmentalobservatory.org/library.cfm?refid=88337.

[10] Sandra Steingraber. Having Faith (Cambridge, Massachusetts: Perseus Publishing, 2001), page 111.

[11] See www.childenvironment.org.

[12] See, e.g., K.A. Boisen, et al, "Are Male Reproductive Disorders a Common Entity: The Testicular Dysgenesis Syndrome", Annals of the New York Academy of Sciences 948:90-99 (2001)

[13] The Endocrine Disruption Exchange, Inc. (TEDX, Inc.) has compiled statistics of these studies by searching the PubMed data base. According to TEDX's unpublished statistics, BFR studies went from 4, 17 and 21 during 1998-2000, to 54, 56 and 88 during 2002-2004.

[14] For discussion of brominated flame retardant (BFR) science, see Birnbaum LS, Staskal DF. "Brominated Flame Retardants: Cause for Concern?" Environmental Health Perspectives 112:9-17 (2004). See also, Sarah Janssen, "Brominated Flame Retardants: Rising Levels of Concern" (Arlington, Virginia: Health Care Without Harm, 2005), available at http://www.noharm.org/details.cfm?type=document&ID=1095 (accessed July 11, 2006).

[15] Unpublished data from The Endocrine Disruption Exchange (TEDX, Inc.), based on a search of the PubMed database of scientific literature, shows studies of PFOS and PFOA increasing from 9, 10 and 18 annually between 1999 and 2001 to 35, 56 and 63 annually between 2002 and 2004. For a summary of the growing number of regulatory actions, see Sanford Lewis "The Shareholder's Right to Know More—2006 Update—Despite DuPont's Recent Concessions to EPA, Shareholder Value Remains at Risk from PFOA", published by DuPont Shareholders for Fair Value and accessible at http://www.ohiocitizen.org/campaigns/dupont_c8/marketreport.pdf (accessed July 11, 2006).

[16] S.E. Lindberg et al., (2001) "Methylated Mercury Species in Municipal Waste Landfill Gas Sampled in Florida." Atmospheric Environment vol. 35, pp. 4011-4015.

[17] See Andreas Sjödin et al., "Retrospective Time-Trend Study of Polybrominated Diphenyl Ether and Polybrominated and Polychlorinated Biphenyl Levels in Human Serum from the United States," Environmental Health Perspectives 112:6 (May 2004), pp. 654-658. Some sources have suggested that concentrations in breast milk are rising exponentially, doubling every five years; see Kellyn S. Betts, "Rapidly Rising PBDE Levels in North America," Environmental Science and Technology Science News online (December 7, 2001), available at http://pubs.acs.org/subscribe/journals/esthag-w/2001/dec/science/kb_pbde.html, viewed April 2005.

[18] Arnold Schechter et al., "Polybrominated Diphenyl Ethers (PBDEs) in US Mothers' Milk," Environmental Health Perspectives 111:14 (November 2003), pp. 1723-1729.

[19] Alexandra McPherson, Beverly Thorpe, and Ann Blake, "Brominated Flame Retardants in Dust on Computers: the Case for Safer Chemicals and Better Computer Design," (Clean Production Action, June 2004).

[20] A useful overview of phthalate hazards and products is provided by Bette Hileman, "Panel Ranks Risks of Common Phthalate: Additional Research Underscores Concerns about DEHP That Were First Expressed in 2000 Report," Chemical & Engineering News, November 14, 2005, pages 32-36.

[21] See Institute of Medicine, "Costs of Environment-Related Health Effects: A Plan for Continuing Study." Washington, DC: National Academy Press, 1981; Fahs et al., "Health Costs of Occupational Disease in New York State," American Journal of Industrial Medicine 16 (1989), 437-449; Leigh et al., "Costs of Occupational Injuries and Illnesses," Archives of Internal Medicine 157 (1997), 1557-1568. Cited in Leonardo Trasande, Philip J. Landrigan, and Clyde Schechter, "Public Health and Economic Consequences of Methyl Mercury Toxicity to the Developing Brain," Environmental Health Perspectives 113:590-596 (2005).

[22] World Health Organization (WHO), Preventing Disease through Healthy Environments; Towards an Estimate of the Environmental Burden of Disease (World Health Organization, 2006/T1_0 1 Tf9 0 0 9 54 58surdyT/T1_r0hDpnment.N[(157 Vg.24lcNyrou_ehimpar Csu

[43] Massachusetts Toxics Use Reduction Program, “Evaluating Progress: A Report on the Findings of the Massachusetts Toxics Use Reduction Program Evaluation” (March 1997).

[44] In many cases, companies report on savings achieved through reducing toxics in combination with savings derived from energy efficiency and recycling, so it can be somewhat challenging to break out “toxics only” numbers. Readers interested in this topic may want to consult Goodman, Kron, Little, “The Environmental Fiduciary: The Case for Incorporating Environmental

[65] See "Cosmetics Companies Shun Contentious Chemical", The Wall Street Journal, January 14, 2005, page B2, and The New York Times, February 3, 2006, page A5.

[66] This description of the Sony matter is adapted from Richard A. Liroff, "Benchmarking Corporate Management of Safer Chemicals in Consumer Products—A Tool for Investors and Senior Executives", Corporate Environmental Strategy: International Journal for Sustainable Business, Vol. 12, No. 1 (January/February 2005), available at www.rosefdn.org/cesreport.pdf and www.iehn.org.

[67] "Green Cleaning Product Procurement Policies, Initiatives and Requirements in the U.S.", available at www.issa.com (accessed June 9, 2006).

[68] Kaiser-Permanente's Kathy Gerwig described their policy in remarks at the CleanMed 2004 conference, available on-line via www.noharm.org (accessed June 8, 2004).

[69] The carpet company's action is described in Melita Marie Garza, "Health-Care Firms Push to Heal Their Buildings," Chicago Tribune, June 20, 2004.

[70] Construction Specialties, Inc. Press Release, September 29, 2005.

[71] Catholic Healthcare West Press Release, "CHW Switches to PVC/DEHP-Free Products to Improve Patient Safety and Protect the Environment," November 21, 2005.

[72] Premier Press Release, "Premier Launches Web-Based Resource for Environmentally Friendly Management and Disposal of Hospitals' Computers and Electronics", February 21, 2005.

[73] See www.consorta.com/suppliers/supplier_epp.asp.

[74] A Legal Framework for the Integration of Environmental, Social and Governance Issues Into Institutional Investment, Fall 2005. available at unepfi.org/fileadmin/documents/freshfields_legal_resp_20051123.pdf.

[75] Virginia L. Gibson, Bonnie K. Levitt, and Karine H. Cargo, "Overview of Social Investments and Fiduciary Responsibility of County Employee Retirement System Board Members In California", 16 November 2000 (on file with author).

[76] See http://www.unpri.org/ (accessed July 11, 2006).

[77] See Mike Tyrrell et al, "Sustainable Investable Themes—A Guide to the Environmental and Social Factors Affecting Each Industry Sector", (London: Smith Barney European Equity Research, 2005).

[78] See Global Energy: Sustainable Investing in the Energy Sector (2005), cited in William Baue, "Spreading SRI: Goldman Sachs Adds Its Own Twist in Social and Environmental Assessment", published at www.socialfunds.com, October 5, 2005.

[79] UBS's work is discussed in William Baue, "SRI Research from UBS Strikes Balance Between Ethics and Economics," published at www.socialfunds.com, October 28, 2005.

[80] See William Baue, "Merrill Lynch and World Resources Institute Analyze Climate Change Investment Opportunities," published at www.socialfunds.com, June 21, 2005.

[81] "Show Me The Money: Linking Environmental, Social and Governance Issues to Company Value," UNEP Finance Initiative Asset Management Working Group. July 2006. (available at http://www.unepfi.org/fileadmin/documents/show_me_the_money.pdf).

[82] Freshfields, supra., page 110.

[83] Scott on Trusts 227.17 emphasis added.

[84] See e.g. 29 CFR 2550.404a-1, ERISA investment duties and UPIA.

[85] 7 CFR §§ 240.12b 2; 240.12b-20; 230.10b-5(b); 2101.1-02(o); 240.4-01(a); and 240.4-02. See also, Basic Inc. v. Levinson, 485 U.S. 224 (1988).

[86] Letter from Department of Labor to Helmuth Fandl, Chairman of the Retirement Board of Avon Products, Inc. (Feb. 23 1988) (“Avon Letter”) at 393; 59 Fed. Reg. 38860.

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