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CHEMICALS

PRODUCT STEWARDSHIP

Advising clients on green product developments is a complex, multidisciplinary task, requiring attorneys, product stewards, and other professionals to address questions at many levels, the authors of this article say. They note that the legal, policy, and ethical terrain is evolving and peppered both with new and exciting challenges as well as difficult legal and ethical conundrums full of pitfalls for the unwary. As such, the authors say product stewards must remain vigilant in recognizing the constantly shifting demands on them as professionals.

Practical Advice for Product Steward Professionals on Remaining Competent, Socially Aware, and Scientifically Proficient

By Lynn L. Bergeson, Charles L. Franklin, Robert W. Hamilton, and Chip Pitts III

Overview

Consumer product manufacturers are challenged today as never before. Materials selection for consumer products invites a dizzying range of considerations: Are the chemicals hormone disruptors, carcinogens, or persistent, bioaccumulative, or toxic? What toxicogenomic biomarkers might make the product the next celebrity tort case? What labeling requirements apply? What are the implications of genetic variations among the demographic to which the product is to be marketed? These considerations, in turn, invite legal, marketing, and technical issues that go well beyond questions of core compliance with the law. What exactly is the professional's role? How are regional differences in regulatory standards, consumer perceptions, ingredient restrictions, and related factors to be addressed? Given the complexity of the global issues and the high stakes involved, what must a professional do to remain competent, socially aware, and scientifically proficient? This article explores these thorny questions, not to resolve them as much as to flag them, and urge professionals — whether lawyers, product stewards, scientists, or others in the field — to remain vigi-

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lant and as prepared as possible in recognizing the constantly shifting demands on professionals in this area.

I. Introduction

The pressure to design, construct, and globally market products that are efficacious, safe, competitively priced, and ''green'' is relentless, and the success of these efforts can easily make or break a product line or even a company. The task is all the more challenging for three reasons.

First, quantitative information that goes into the calculus for determining what ''efficacious,'' ''safe,'' and ''green'' mean is a constantly moving target. Scientific know-how about the chemical components of a product and the technology used to develop the products are but two of many variables.

Second, qualitative considerations such as cultural differences, societal norms, consumer expectations, and ethical considerations are every bit as relevant and differ wildly from region to region. These considerations also are constantly shifting in new and often unpredictable ways. These are not merely consumer relevant, but are perceptual differences that affect regulatory policy decisions and their enforcement.

A tertiary level of complexity for professionals in this area is the absence of clearly defined legal standards pertinent to the assessment of fast-emerging technologies and the inability on a real-time basis for the law to keep pace with technological developments that impact chemical product development. Emerging enabling technologies such as nanotechnology and biotechnology, for example, cut across virtually all manufacturing sectors of the global economy. Yet the legal standards that apply to assessing the products of these technologies and their conformance with basic principles of product stewardship and environmental, health, and safety law, regulation, and policy often are unclear.

Similar complexities arise with other areas of technological advancement, such as genomics, which is the study of gene expression, toxicogenomics, genetics, and the evaluation of the toxicity of chemicals and other environmental stressors. These are changing forever the way risk is defined, monitored, and warned against because these areas of study enable the rough correlation of human biological predispositions and exposure to chemicals and environmental stressors with certain health impacts. These genetic predispositions may identify a wholly new understanding of susceptible populations and an expectation that they be given appropriate legal protection. In global businesses, these complexities should be viewed with a sensitivity that reflects the variable legal, cultural, ethical, and commercial realities that apply in any geographic region.

Professionals who counsel on the EHS implications of product design, manufacture, distribution, and marketing are uniquely challenged with considering diverse, complex, and frequently unresolved issues that bear directly upon the professional's ability to counsel clients effectively and in a way that is consistent with the highest legal and ethical standards. The diversity and complexity of these considerations are such that an in-depth review is beyond the scope of this article, and even a comprehensive review would be but a snapshot of a rapidly expanding collage of data and interpretation. Rather, this article sets forth factors to consider in assessing what the professional's role is in providing meaningful and useful counsel to clients making and marketing products. The article focuses on the challenges that arise when marketing products as green, shorthand for environmentally sustainable.

II. Background

Making and selling green or sustainable products is an increasingly common goal for manufacturers seeking to distinguish their products from those of their competitors. Whether inspired by genuine altruism, pressure from retailers and customers, regulatory requirements or risks, or the simple desire to tap into a perceived marketing bonanza, many manufacturers believe that greener is better. They sometimes, however, have little sense of what it will take from a technical and regulatory standpoint to develop a legally compliant final product that can credibly be marketed as green and understood by consumers.

For professionals working with sustainable product development, the inconvenient truth about terms like ''green chemistry,'' ''green manufacturing,'' and ''environmentally preferable'' is that these are not black-letter legal terms. There is no single authoritative standard or universally accepted list of attributes professionals can rely upon in declaring a product green. The green standards that do exist are rapidly evolving as scientific understanding, consumer expectations, and applicable laws evolve globally. Advising clients on green product developments is a complex, multidisciplinary task, requiring attorneys, product stewards, and other professionals to address questions at many levels.

For purposes of this article, we use the term green as a placeholder for a broad array of issues that go well beyond mere regulatory compliance with environmental laws, adherence to Federal Trade Commission standards for acceptable environmental marketing claims, or emerging and converging global norms, although understanding these standards is critical for any product manufacturer. In the context of this article, we are referring to a constellation of choices manufacturers make in designing, manufacturing, and marketing a product. Choices are driven by, among other considerations: the toxicity of the product's components; environmental impact of current and emerging technologies for manufacturing the product and/or critical components; opportunity for and cost of risk assessment, characterization, and management throughout the product's lifecycle; formal measurement standards and attribute definitions as well as norms and mores of the market niches and geographic regions in which the product will be marketed; and the reasonable (and sometimes unreasonable) expectations of retailers, consumers, and watchdog groups in the public, nonprofit, and private sectors.

What follows is an overview of some of the key drivers contributing to the greening of consumer products, the legal and regulatory considerations that should be addressed when counseling clients, the constraints and risks related to green marketing, and some thoughts on what lawyers should do in providing effective counsel.

III. The Greening of Consumer Products

The manufacture and importation of commercial and consumer products is big business in the United States. In 2010, manufacturing produced $1.7 trillion of value,

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or 11.7 percent of U.S. gross domestic product (GDP),[1] and, in 2009, provided 11.9 million full-time and part-time jobs, or 8.7 percent of jobs for all industries.[2] The importance of these jobs increases as public sector budgets are slashed, but the global competition has never been greater.

In recent years, several factors have figured prominently into the marketing of products, including a product's environmental impacts, its greenness, and its sustainability. These factors have become compelling considerations for some segments of the public. Whether from a shared commitment to environmental stewardship, pressure from customers or other stakeholders, current or future regulation, or mere marketing strategy, many businesses have responded.[3] Indeed, because of the increase in green advertising claims, the FTC initiated its review of its *Guides for the Use of Environmental Marketing Claims* (Green Guides) in 2007, rather than in 2009, as it had scheduled.[4] As the supply and demand for sustainable products has grown, the scrutiny placed on products purporting to be green alternatives has also expanded. This scrutiny is coming not just from regulators, but from businesses and the public as well. Corporate environmental and product stewardship counsel are well served by understanding the primary sources for this scrutiny.

The Public Right-to-Know. Especially during the 1980s and 1990s, a diverse coalition of public and private stakeholders succeeded in prompting changes to federal policy that increased transparency with respect to government oversight and the management of environmental, health, and safety risks from regulated industries. At a very fundamental level, the right-to-know movement helped inspire the disclosure of far more information about chemicals, their release into the environment, and their toxicological properties than was common 20 or 30 years ago. Such transparency also has been one of the lynch pins of the burgeoning political power of activist nongovernmental organizations.

Information Technology. Not only is there far more information being disclosed today than in prior decades, there are far greater means and opportunities for people to access such information. The Internet provides information instantly, easily, and, of course, generally free of charge. Unfortunately it also has encouraged the proliferation of misinformation and spurious charges that weigh into the mix of risk and reward offered by environmental marketing claims. For example, search engines optimize the availability of large volumes of information on specific chemicals in particular products, so that product ingredient anonymity largely is a thing of the past.[5] More sophisticated web users can avail themselves of a growing number of federal, state, international, and third-party-generated chemical data repositories, each of which provides significant and detailed information on chemicals, chemicals in products, and related information.[6]

Environmental Law and Policy. The maturation of environmental law also is a factor contributing to the tsunami of information on chemicals in products. At the federal level, the nation's core environmental laws have long recognized a tension between the need for information disclosure in a regulatory context (i.e., to allow regulators to ensure industry compliance with relevant health and safety standards) and the need for companies to protect proprietary, confidential product and manufacturing process information from public disclosure.[7] Over time, however, federal laws and federal agencies increasingly have treated industry reporting and disclosure as more than mere tools supporting command-and-control standards and compliance monitoring efforts. Disclosure and reporting requirements have become independent [information regulation] sources of power for regulators, who can use public disclosure of emissions, chemical toxicological properties, and other data in a way that the government and other stakeholders can combine in almost a ''bully pulpit'' fashion to encourage companies to improve environmental performance and to discourage consumers from patronizing companies that refuse.[8] Indeed, there has been a growing movement of surrogate stakeholders for consumers (e.g., Greenpeace, Sierra Club, Environmental Working Group, among others) that participate in the regulatory process and monitor corporate behavior. Similarly, faced with a long-standing impasse with

[1] U.S. Department of Commerce Bureau of Economic Analysis (BEA), ''Gross-Domestic-Product-by-Industry Accounts: Value Added by Industry'' (April 26, 2011), available at http://www.bea.gov/industry/gpotables/gpo_action.cfm?anon=889574&table_id=27010&format_type=0.

[2] BEA, ''Gross-Domestic-Product-by-Industry Accounts: Full-Time and Part-Time Employees by Industry'' (April 26, 2011), available at http://www.bea.gov/industry/gpotables/gpo_action.cfm?anon=889574&table_id=27066&format_type=0.

[3] *See* ''Proposed Revisions to the Green Guides,'' at 6, available at http://www.ftc.gov/os/fedreg/2010/october/101006greenguidesfrn.pdf.

[4] FTC, ''FTC Reviews Environmental Marketing Guides, Announces Public Meetings'' (Nov. 26, 2007), available at http://www.ftc.gov/opa/2007/11/enviro.shtm.

[5] Even where product ingredients are not legally required to be disclosed, the U.S. Environmental Protection Agency has issued guidelines for companies that wish voluntarily to disclose such information. On July 15, 2011, EPA published nonbinding guidance jointly with the Consumer Speciality Products Association encouraging companies to disclose all intentionally added ingredients on company web sites and labels. *See* EPA, ''Guidelines for Voluntary Disclosure of Antimicrobial Ingredient Information on Company Websites and/or Labels'' (July 15, 2011), available at http://www.epa.gov/oppad001/voluntary-disclosure.html. *See also* 138 DEN A-1, 7/19/11. EPA also is reportedly working on a proposed rule for inert ingredient disclosure.

[6] The National Library of Medicine's Household Products Database is available at http://householdproducts.nlm.nih.gov/ ; the Environmental Working Group's Skin Deep Cosmetics Database is available at http://www.ewg.org/skindeep/ ; and the Project on Emerging Nanotechnologies' inventory of consumer products is available at http://www.nanotechproject.org/inventories/consumer/.

[7] Toxic Substances Control Act Section 8(e), 15 U.S.C. § 2607(e), allows submitters to claim confidentiality for proprietary information within a submission. However, EPA states that manufacturers should submit a detailed written explanation to substantiate all confidential business information (CBI) claims. EPA, ''Confidential Business Information,'' available at http://www.epa.gov/opptintr/tsca8e/pubs/confidentialbusinessinformation.html.

[8] One likely reason for this is that the legal standard imposed to justify labeling or disclosure of a product's ingredients often is lower than the standard required to justify a ban or restriction on content, allowing governments to act without meeting the high standards needed to demonstrate unreasonable risk or other safety standards.

respect to updating federal chemical control laws, a growing number of states and municipalities have adopted product labeling, disclosure, and chemical product restriction requirements for consumer products or other items believed to contain chemicals of concern.

New Enabling Technologies and New Questions. The proliferation of new enabling technologies pertinent to both chemical production and chemical detection and characterization also has driven increased scrutiny of the chemicals in and environmental impacts of products today. Enabling technologies such as nanotechnology and biotechnology are the subject of relentless analysis for the value they offer in terms of achieving sustainability and the unknowns of exactly how they deliver on the promise of a better tomorrow and at what cost. Toxicogenomics technology is expected to impact significantly product development and marketing. By providing a quick screening method for identifying chemicals in products early in the investigative stages, toxicogenomics may provide product manufacturers subject to governmental approval, such as those making new chemicals under TSCA or new drugs under the Federal Food, Drug, and Cosmetic Act, with valuable information in deciding whether to proceed with product development before conducting more expensive toxicological tests. These new technologies have created a robust discussion around the meaning of the ''precautionary approach'' (often referred to as the ''precautionary principle'')[9] embodied in Principle 15 of the Rio Declaration.

The same innovation engine driving these new technologies also creates other new analytical tools making chemical detection possible at lower and lower levels. What is not nearly as developed, however, is the context in which such information can be thoroughly understood. It is one thing to know empirically that a chemical is present in a particular biological or environmental matrix. It is quite another, however, to know what risk, if any, the presence a chemical may pose. The rate of change in the tests considered standard and the interpretation of results is staggering. There are now additional pressures emerging, for example, as animal rights activists call for alternatives to animal testing.

Globalization of Commerce. Finally, the globalization of commerce has greatly increased the complexity of making and selling products. Regional differences in legal and regulatory standards, consumer perception, and cultural norms are important factors that must be carefully considered in the decisionmaking process. Yet uncovering and understanding these differences are seldom accomplished easily and typically require access to a sophisticated boots-on-the-ground network of experience and local/regional counsel and other experts to interpret local and regional laws, customs, and commercial courses of conduct.

IV. The First Step — Compliance With Basic Regulatory Requirements

Before delving into some of the unique challenges posed by green or sustainable product development, it is worth reiterating that the most fundamental role a company's environmental/product stewardship professional plays is helping product-development teams understand what specific content restrictions, premanufacturing approvals, performance standards, and other regulatory requirements apply, and of which the manufacturer must be aware to ensure a product can legally enter the market in the first place.

Depending on the product in question, manufacturing operations can trigger an increasingly broad range of laws and regulatory standards intended to address the potential unintended health and environmental impacts of human commercial, industrial, and consumer product use. Whether a company relies on legal counsel or a team of specialized product experts to navigate the myriad regulations imposed under federal, state, regional, and international law, basic compliance with standards governing selection of product ingredients, design and operation of manufacturing facilities, and management of effluent, emissions, and waste generated is a *minimum* competency requirement. All of the manufacturing regulations are mirrored by transportation and use regulations that typically vary significantly by jurisdiction. Regulatory compliance alone does not earn companies the right to declare a product green but environmental noncompliance is one of the fastest ways to see products barred or pulled from shelves, and a company's reputation damaged, perhaps fatally. Product manufacturers face a range of regulatory constraints that may affect their options for designing a new product.

A. Product Design Constraints

In selecting the chemical substances and materials used in manufacturing a new product or altering an existing one, manufacturers must consider more than just whether a substance or material has the structural, chemical, physical, aesthetic, and economic properties necessary to achieve the product's intended purpose. Product designers must negotiate a variety of substantive and procedural regulatory constraints governing when specific materials can be used and under what conditions. These constraints can include, *inter alia*, TSCA premanufacture notification requirements for chemicals new to the U.S. market and even novel uses of existing chemicals;[10] use restrictions and data generation requirements for some existing substances flagged for potential risks;[11] restrictions on the use of volatile organic compound (VOC)-emitting substances in consumer products;[12] and restrictions on the use of chemicals deemed to be ozone-depleting substances under the Montreal Protocol or the Clean Air Act.[13]

Products with specific pesticidal use patterns or claims can face a wide range of additional constraints. For example, a simple cleaning product will be subject to costly and time-intensive pre-market approval requirements, including extensive data submission requirements, if it is designed to treat mold, germs, or other microbial pests.[14] In addition, consumer products are subject to constraints on use that must consider reasonably anticipated misuse.

[9] Though these phrases are often distinguished, for purposes of this article we are treating them as synonymous.

[10] TSCA § 5(a), 15 U.S.C. § 2604(a).
[11] TSCA § 5(b), 15 U.S.C § 2604(b).
[12] Clean Air Act § 183(e), 42 U.S.C. § 7511b(e).
[13] Clean Air Act §§ 604-605, 42 U.S.C. § 7671c-d.
[14] FIFRA § 3(h), 7 U.S.C. § 136a(h).

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Of course, in developing and operating manufacturing facilities and processes for new products, manufacturers must negotiate an even broader range of regulatory constraints designed to minimize the release of pollutants and waste into the environment. These constraints, mandated under a complicated framework of environmental laws, are too numerous and diverse to discuss in detail here but, if ignored or mismanaged, can subject manufacturers to staggering compliance costs and damage to their reputations well beyond the value of a specific product manufacturing line.

B. Disclosure Considerations and Constraints

Increasingly, the information disclosure requirements a product manufacturer faces can be equally daunting. Determining whether the presence of a chemical substance requires disclosure is complicated. Disclosure obligations generally fall into two categories: regulatory and corporate, and the considerations that attach to each category are quite different.[15]

1. Regulatory Disclosures

In the United States, disclosure of chemical ingredients is compelled under several product laws. TSCA requires pre-market disclosure and approval of new chemicals, or new uses of existing chemicals.[16] Manufacturers, importers, and processors of chemicals must provide notice to the EPA of any use of a substance that EPA has determined is ''a significant new use.''[17]

Under TSCA Section 8(e), manufacturers, processors, and distributors of chemical substances must immediately inform EPA if they obtain information that supports the conclusion that a chemical substance presents a substantial risk of injury to health or the environment. TSCA Section 12(b) requires disclosure to EPA and to a receiving country notice of exports of certain chemicals, and Section 13 requires disclosure to EPA of chemicals being imported into the United States. While information claimed as CBI is protected from public disclosure, these protections are not what they used to be and EPA has made a point of reducing what it believes are misapplications of TSCA CBI claims and otherwise making chemical information available to the public.[18]

New pesticide active ingredient chemicals are also subject to pre-market approval by EPA under the Federal Insecticide, Fungicide, and Rodenticide Act. Under FIFRA Section 3, product ingredient information must be shared with EPA. Like TSCA, FIFRA requires disclosure of unreasonable adverse effects of substances regulated under FIFRA pursuant to Section 6(a)(2).[19] This section requires that a registrant submit to EPA any additional factual information regarding unreasonable adverse effects of the pesticide on the environment.

Disclosure is also required for releases into the environment under the Emergency Planning and Community Right-to-Know Act of 1986. The right-to-know provisions were expressly intended to increase the public's knowledge of and access to information on chemicals at individual facilities, their uses, and releases into the environment.[20]

EPA is only one of several regulatory agencies product manufacturers must address in assessing the relevant reporting and information disclosure obligations. For example, the Consumer Products Safety Commission regulates products under the authority of the Consumer Product Safety Act, a federal law that tasked the CPSC with protecting consumers from unreasonable risks of injury from consumer products. Under CPSA Section 15, a manufacturer, distributor, or retailer of a consumer product must notify the commission immediately upon receipt of information that reasonably supports the conclusion that a product fails to comply with a standard, contains a defect, or creates an unreasonable risk of serious injury or death.[21] In addition, ingredient disclosure on the consumer product label is required by a variety of rules. EPA controls the disclosure of pesticide active ingredients, the Food and Drug Administration requires full disclosure of cosmetics and over-the-counter drugs, and CPSC demands the labeling of any ingredients that prompt single-word hazard warnings.

The CPSA was amended in 2008 with enactment of the Consumer Product Safety Improvement Act, which remedied a particular problem preventing disclosure of information pertinent to consumer products. Prior to the CPSIA, consumers seeking product risk information from the CPSC pursuant to Section 15 were routinely prevented from obtaining information under CPSA Section 6(b)(5), which prevents the release of such information except under narrow circumstances. The CPSIA mandated the creation of an on-line public database of consumer safety complaints.[22]

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[15] For a more detailed discussion of disclosure considerations, *see* L. Bergeson and C. Auer, Nano Disclosures: Too Small to Matter or Too Big to Ignore?, 25 *Natural Resources & Environment*, Vol. 25, No. 3 (Winter 2010).

[16] TSCA Section 5(a)(1) and new ''uses'' of existing chemicals under TSCA Section 5(a)(2). 15 U.S.C. §§ 2604(a)(1) and (a)(2).

[17] TSCA § 5(a)(1)(B), 15 U.S.C. § 2604(a)(1)(B). TSCA does not establish standards or criteria for establishing when a new use is deemed ''significant,'' but requires EPA to consider ''all relevant factors'' before promulgating a significant new use rule (SNUR). TSCA § 5(a)(2), 15 U.S.C. § 2604(a)(2). Under the regulations, the significant new use that triggers a SNUR may not be a use at all, but an increased production volume, increased human or environmental exposure, or change in disposal or manufacturing methods.

[18] *See, e.g.,* EPA, ''Increasing Transparency in TSCA'' , available at http://www.epa.gov/oppt/existingchemicals/pubs/transparency.html. *See also* 229 DEN A-10, 11/29/11.

[19] FIFRA § 6(a)(2), 7 U.S.C. § 136d(a)(2).

[20] Perhaps more than any other EPCRA provision, Section 313 has driven the disclosure of much information regarding actual chemical releases, which in turn has inspired enhanced focus on chemical ingredients in consumer products and pressures to deselect certain substances due to their perceived harm to human health and/or the environment. *See* information on the Toxics Release Inventory, available at http://www.epa.gov/tri/.

[21] The CPSC also administers the Federal Hazardous Substances Act, Flammable Fabrics Act, and Poison Prevention Packaging Act. Violation of any rule, regulation, ban, or standard enacted pursuant to any Act the Commission enforces triggers a duty to notify CPSC under CPSA Section 15.

[22] On March 11, 2011, the CPSC announced the availability of the SaferProducts.gov database. According to CPSC, reporting product safety incidents through the site will help CPSC identify product hazards more quickly and provide consumers with safety information on products in and around the home. CPSC is to review all reports submitted online, and, within five business days, transmit qualifying reports to the manufacturer. The manufacturer will then have 10 business days to respond

2. Corporate Disclosures

For publicly traded companies, Securities and Exchange Commission disclosure obligations under Regulation S-K apply. Item 101 (Description of Business) requires a company to disclose material effects that compliance with environmental laws will have on earnings, including effects on estimated material capital expenditures for environmental control facilities, if material. Item 103 (Legal Proceedings) requires a description of material pending legal proceedings, including environmental litigation, in which the registrant or any of its subsidiaries is a party. Disclosure made under Item 503(c) (Risk Factors) requires a discussion of ''significant factors'' that make an investment speculative or risky. Item 303 (Management Discussion and Analysis of Financial Condition and Results of Operations) requires management to discuss and analyze known trends or demands, commitments, events, or uncertainties that are reasonably likely to have a material effect on a company's financial condition.[23]

The Sarbanes-Oxley Act[24] also imposes disclosure obligations on publicly traded companies and their lawyers. Among other requirements, Sarbanes-Oxley requires that the chief executive officer and chief financial officer of a corporation certify the accuracy of each SEC filing the company makes, including disclosures concerning environmental liabilities.[25]

3. State Level Product Restrictions and Constraints

States are more active today than ever before in implementing product- and chemical-specific laws regulating chemical substances. These laws can pose formidable product marketing constraints. Many such measures seek to diminish the use of targeted chemicals through product labeling and other disclosure requirements. As of the end of 2010, 18 states had collectively passed 71 chemical laws since 2003.[26] Most of the measures target particular chemicals such as phthalates, lead, or other substances. Others seek to promote green chemistry.

California has long taken the lead in enacting precedent-setting legislation, much of which relates to chemical risks. Its rigorous regulation of VOCs is a model for federal air regulation. California's Proposition 65 has redefined the area of hazard warning and labeling. In 2008, then-Gov. Arnold Schwarzenegger (R) signed AB 1879 and SB 509 into law and took green chemistry to a whole new level. These measures paved the way for the state's Green Chemistry Initiative, a game-changing program that prioritizes chemicals for review and targets chemicals in consumer products for enhanced review.[27] Many speculate that the Green Chemistry Initiative and its regulatory implementation will provide fertile ground for enhanced tort liability involving commonly used personal care and household cleaning products. California does not even stop at its borders in the efforts to green the environment. The state also enacted AB 32 to control greenhouse gases, leaping ahead of the United States in implementing such measures.

California certainly is not alone, and other states are credited with game-changing initiatives. For example, the Massachusetts Toxics Use Reduction Act (TURA) is intended to promote safer and cleaner production that enhances the economic viability of Massachusetts businesses. TURA requires entities located in Massachusetts that use more than a certain amount of listed toxic chemicals to prepare a Toxics Use Reduction Plan, in which they examine how and why toxic chemicals are used at their facilities, evaluate their options, and report the quantities of toxic chemicals that are used, generated as byproducts (waste), and shipped in as chemicals or in products. These are merely illustrative examples of similar state laws mushrooming across the country.

4. Foreign Product Restrictions and Constraints

Even a cursory review of foreign chemical product control laws is beyond the scope of this paper. It is noted, however, that many countries have considered and enacted chemical product-specific laws. The European Union's newly enacted comprehensive regulation for industrial chemicals is estimated to have a 10 billion Euro cost and is also, to use the parlance of the day, a game changer. The Registration, Evaluation, Authoriza-

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and provide comments. At the end of the 10-day period, if all requirements are met, CPSC will post the report and the manufacturer's comments on SaferProducts.gov. CPSC will post reports that contain the minimum required information in the database 10 business days after sending a copy to the manufacturer, or, ''approximately 15 business days after [the reports] are submitted to the CPSC.''

The CPSIA was amended Aug. 12, 2011, when President Obama signed into law Pub. L. No. 112-28. Among other changes, Section 7 of the law delays by five days the posting of information on the database to enable CPSC to assess whether the information is materially inaccurate and thus should not be posted.

[23] Under the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act, companies that sell products using conflict minerals (columbite-tantalite, cassiterite, gold, wolframite, or derivatives of these minerals) must report to the SEC whether those minerals originated or may have originated in the Democratic Republic of Congo or an adjoining country. Parties also must provide information on actions taken to exercise due diligence on the source and chain of custody of these minerals to ensure that they are not financing or benefiting armed groups.

[24] Pub. L. No. 107-204, 116 Stat. 745 (2002).

[25] The application of these reporting obligations to business operations has always invited controversy, particularly regarding environmental matters. The SEC has issued interpretative guidance on how these disclosure rules apply to climate change matters. The guidance imposes no new disclosure obligations. Rather, it clarifies that certain SEC disclosure obligations may require disclosure of matters relating to the potential effects of climate change. The guidance is useful in explaining how these disclosure obligations apply to climate change matters and has relevance to other matters, including disclosure obligations that may arise in connection with chemical uses.

[26] Safer Chemicals Healthy Families, *Health States: Protecting Families from Toxic Chemicals While Congress Lags Behind* at 6, available at http://blog.saferchemicals.org/2010/11/healthy-states-protecting-families-from-toxic-chemicals-while-congress-lags-behind.html.

[27] SB 509 establishes the Toxics Clearinghouse, which is intended to increase the public's knowledge about the toxicity and hazards of chemicals. It also directs the California Office of Environmental Health Hazard Assessment (OEHHA) to evaluate and specify the ''hazard traits'' and environmental and toxicological endpoints of chemicals that are to be included within the state clearinghouse. AB 1879 mandates the regulatory process to be established for identifying and prioritizing chemicals of concern in consumer products and to create methods for analyzing alternatives to existing chemicals.

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tion and Restriction of Chemicals (REACH)[28] regulation covers all chemicals, both new and existing, produced in or imported into the EU in quantities above one metric ton per year and requires that each be registered. While there are certain exemptions for low-risk chemicals, the European Chemicals Agency, the new agency created to manage and coordinate REACH implementation, received 25,000 dossiers covering 4,300 distinct substances by the first registration deadline. A dossier must be prepared and submitted on all chemicals that will be evaluated against a base set of toxicological data requirements, with ascending levels of data depending upon production volume. For chemicals produced in quantities above 10 metric tons, a more extensive Chemical Safety Report is required. The data generated under REACH are widely accessible and although it is an EU initiative, REACH already is altering the global landscape of chemical regulation.

Another EU chemical control law addresses electrical and electronic equipment because such equipment often contains hazardous substances and materials; the use and eventual disposal of these materials are believed to pose risks to human health and the environment. The EU adopted Directive 2002/95/EC on the Restriction of the use of Hazardous Substances (RoHS) in electrical and electronic equipment to address these risks, and the ''recast'' of the RoHS Directive entered into force July 21, 2011. RoHS is closely related to the EU's Directive 2002/96/EC on waste electrical and electronic equipment (WEEE), another significant EU chemical control law.

While related, RoHS and WEEE address different parts of the product lifecycle of electrical and electronic equipment. RoHS seeks to reduce the amount of hazardous raw materials entering electronic products while WEEE addresses reducing the amount of electronics entering landfills by creating collection, recycling, and recovery targets for electrical products. Variations on RoHS have been or are being developed in countries outside of the EU, including Australia, China, South Korea, Taiwan, and Thailand. Canada, Japan, and other countries have enacted or are implementing similar product regulation laws.

Several international governments are also implementing REACH-like laws. In November 2009, Turkey enacted the Inventory and Control of Chemicals Regulation, which is a scaled-down version of REACH and mandates the creation of a chemical inventory for manufactured and imported substances in Turkey. On Feb. 25, 2011, the South Korea Ministry of the Environment made a pre-announcement of the draft of the Act on the Registration and Evaluation of Chemicals, or ''Korean REACH.'' The act would amend the current Toxic Chemicals Control Act and introduce many similar regulatory elements from the EU REACH, including priority chemicals, chemicals for authorization, chemicals for restriction, pre-registration of priority chemicals, and communication of information throughout the supply chain. Canada has implemented an innovative Chemical Management Plan that is similarly far reaching and has begun to have impacts ahead of REACH. The Canadian bisphenol A (BPA) ban from plastic baby bottles instigated bans around the United States and great upheaval among consumers looking for BPA-free products.

5. Global Hard, Soft, and Voluntary Standards

In addition to specific foreign laws, there has in recent years been an explosion of global hard and soft laws, voluntary norms, and ethical standards setting forth expectations of compliance with baseline levels of environmental protection and responsibility, particularly where environmental obligations intersect with consumer protection and human rights. The numerous examples include such recent items as the new ISO 26000 standard on Corporate Social Responsibility, amendments to the Organization for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises and their National Contact Point process,[29] the United Nations (UN) Principles for Responsible Investment,[30] the UN Global Compact's principles,[31] the new UN Framework and Guiding Principles applying to transnational business and human rights,[32] and other converging global norms that crystallize expectations pertaining to due diligence, transparency, risk assessment, and accountability— particularly where environmental risks converge with risks of harm to human consumers or communities. Such standards increasingly influence the tort standard of care in various legal systems around the world and are increasingly being looked to in class action litigation, arbitration, administrative remedies, and other remedial avenues to hold corporate actors accountable through settlements or findings of liability.[33]

V. Beyond Compliance — Creating the Next Generation of Green Products

A. Managing the Risks and Rewards of New Technologies

As illustrated above, manufacturers and their product stewards have plenty of work to do just to navigate current and evolving federal, state, and international regulatory and voluntary standards governing the health and environmental safety of new products. Compliance is just the ante that every manufacturer and marketer must meet to enter the game. Manufacturers developing green products must navigate another set of loosely delineated and rapidly changing constraints relating to the evolution of radically different emerging technologies.

Much has been written on the interplay between technology and governance and the reality that technological change fast outpaces the ability of governance systems to acknowledge these changes and develop clear legal standards against which safe and effective

[28] EC 1907/2006, available at http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm.

[29] http://www.oecd.org/document/28/0,3746,en_2649_34889_2397532_1_1_1_1,00.html and http://www.oecd.org/document/60/0,3343,en_2649_34889_1933116_1_1_1_1,00.html.

[30] http://www.unpri.org/.

[31] http://www.unglobalcompact.org/AboutTheGC/TheTenPrinciples/index.html.

[32] http://www.unglobalcompact.org/Issues/human_rights/The_UN_SRSG_and_the_UN_Global_Compact.html.

[33] *See, e.g.*, Chip Pitts (ed.), Kerr, Janda, and Pitts, Corporate Social Responsibility: A Legal Analysis (2009).

manufacturing and use conditions can be measured.[34] Technologies such as biotechnology, nanotechnology, and other transformative technologies offer extraordinary promise for a better tomorrow, but inspire a great deal of uncertainty in the here and now because of what is not known about the consequences of these technologies and their unleashing on the environment and/or in biological systems.

Most environmental professionals have a general understanding of what nanotechnology and biotechnology are. According to EPA, nanotechnology is ''the understanding and control of matter at dimensions of roughly one to 100 nanometers, where unique phenomena enable novel applications.''[35] The tiny engines driving nanotechnology are nanoscale particles and/or materials, defined generally by EPA as materials having structures with dimensions in the nanoscale and that may have properties different from those of the same chemical substances with structures at a larger scale.

The small size of nanoparticles, for example, can facilitate their uptake into cells and their movement through the body more readily than is the case with their macro counterparts. In addition to size, however, other factors contribute to a general sense of uncertainty as to the biological and environmental effects of exposure to engineered nanoscale materials. The complexity of engineered nanomaterials means that their impact will depend on more than chemistry alone. Size, shape, surface chemistry, and particle distribution, for example, all can influence how these materials behave.

Biotechnology, at its simplest, is ''technology based on biology-biotechnology harnesses cellular and biomolecular processes to develop technologies and products'' aimed at improving our lives and the health of the planet.[36] On a more technical level, biotechnology has been described as a technology that includes genetically modified organisms produced through recombinant deoxyribonucleic acid (rDNA).[37] Products of biotechnology are as diverse as products of nanotechnology and are designed for use in agriculture, forestry, environmental remediation, and various medicinal/health and industrial applications.[38]

In the United States, there is no single law addressing potential risks from commercialization of nanotechnology or biotechnology. The regulation of both is largely dependent upon the use of the manufactured nanomaterial, in the case of nanotechnology, and the organism, in the case of biotechnology. With respect to nanotechnology, the official position of the U.S. government is that existing laws are sufficiently robust, with appropriate regulatory tweaks, to evaluate and address potential risks from the applications and implications of nanotechnology.

The government approached the commercialization of biotechnology differently and developed a coordinated approach in preparing the 1986 *Coordinated Framework for the Regulation of Biotechnology* (Coordinated Framework) and the 1992 *Policy on Planned Introductions of Biotechnology Products Into the Environment* (Planned Introductions).[39] These documents were developed by an interagency task force that worked under the direction of the White House Office of Science and Technology Policy. Given the almost two decades since the Coordinated Framework was issued, a substantial body of regulation and guidance has been developed.

Regardless of the federal government's approach to governance issues generally with regard to the commercialization of new technologies or products from such technologies, it is indisputable that lawyers counseling clients using emerging technologies face a wide range of issues, challenges, and uncertainties. Threshold questions regarding the application of traditional environmental laws and regulations to applications of nanotechnology are common. Even if the scope of a law is clear, practical questions frequently arise relating to the application and relevance of regulatory standards to nanoscale materials and products of nanotechnology designed for more conventional chemicals and workplace conditions. Clear guidance and policy from the government is more available now than before, but is still largely absent.

In this regard, private initiatives have proved invaluable. In the nanotechnology area, an excellent example is the *Nano Risk Framework*, a joint project of DuPont and the Environmental Defense Fund (EDF).[40] The framework is a comprehensive tool for evaluating and addressing the EHS risks of nanomaterials. Building on the traditional risk assessment paradigm, the six-step framework cuts cross all stages of a product's lifecycle, from initial sourcing through manufacture, use, and recycling or disposal. The framework incorporates several new elements. It identifies base sets and additional information elements on properties, hazards, and exposures that serve as reference points for evaluating risks and guiding decisions on a material or product.[41]

The tricky part with applying any tool originally intended to apply to conventional technologies is addressing the knowledge gap that necessarily defines what is

[34] One of the most eloquent collection of essays on this subject is *Environmentalism & The Technologies of Tomorrow,* edited by R. Olsen and D. Rejeski (2005).

[35] *See* EPA, Fact Sheet for Nanotechnology under the Toxic Substances Control Act, available at http://www.epa.gov/opptintr/nano/nano-facts.htm.

[36] Biotechnology website, available at http://www.bio.org.

[37] Biotechnology Deskbook at 1 (ELI 2001).

[38] Examples include biopesticides, genetically engineered enzymes, bacteria intended for remediation, foods modified for enhanced nutritional value, and plants and animals capable of producing pharmaceuticals.

[39] *Coordinated Framework for the Regulation of Biotechnology*, 51 Fed. Reg. 23,302 (June 26, 1986); *Exercise of Federal Oversight Within Scope of Statutory Authority: Planned Introductions of Biotechnology Products Into the Environment*, 57 Fed. Reg. 6,753 (Feb. 27, 1992).

[40] *Nano Risk Framework,* Environmental Defense-DuPont Nano Partnership (June 2007), available at http://www.NanoRiskFramework.org.

[41] Another example is the American Bar Association Section of Environment, Energy, and Resource's Nanotechnology Project. The section several years ago completed a series of focused white papers analyzing the core federal environmental statutes and their ability to address issues arising from the use of nanotechnology. Specifically, the Section of Environment, Energy, and Resources (SEER) prepared papers on nanotechnology and the Clean Air Act; Comprehensive Environmental Response, Compensation, and Liability Act; Clean Water Act; Environmental Management Systems/Innovative Regulatory Approaches; FIFRA; Resource Conservation and Recovery Act; and TSCA. These papers, supplemented with papers on the National Environmental Policy Act, Food Quality Protection Act, and Endangered Species Act were published in *Nanotechnology: Environmental Law, Policy, and Business Considerations*, L. Bergeson, Editor (ABA Press 2010).

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unique and thus unclear from a legal and regulatory perspective.[42] The product stewards' judgment must be informed by constantly changing scientific information, regulatory standards, socio-political developments, and business practices that often compel compliance with loosely defined standards of care customary to entities in established business sectors.

B. Defining Green: Picking Tomorrow's Winner Today

Businesses need more than just access to promising technology for a successful new green product. As regulators, retailers, and consumers scrutinize environmental claims more closely than ever before, the ability to understand and predict trends in green chemistry, green manufacturing, and green product standards is growing in importance. Just as understanding the regulatory framework for governmental regulation is critical to developing an effective compliance strategy, understanding the metrics that will be applied by regulators, consumers, and other stakeholders in assessing a green product's environmental performance is critical to developing successful research and development and investment plans upstream of product creation, as well as operations and marketing downstream.

Today, however, manufacturers must navigate among a variety of government and third-party standards, each reflecting different judgments as to what environmental qualities, and what testing standards, should be used to declare a product ''green.'' At the federal level, for example, EPA has developed a voluntary ''Design for Environment'' (DfE) labeling program, allowing compliant products to display the DfE label, purportedly ''enable[ing] consumers to quickly identify and choose products that can help protect the environment and are safer for families.''[43] Operated through EPA's Office of Pollution Prevention and Toxics, the DfE label is available to a variety of chemical products, including cleaners, degreasers, paints, and coatings. The assessment criteria give particular importance to the relative health and environmental toxicity of the product's ingredients.[44] Indeed, DfE's final alternatives assessment criteria focus chiefly on toxicological criteria, and list endpoints that could be added if deemed applicable and if data are available, including global warming potential and ozone formation.[45]

In contrast, criteria being developed under California's Green Chemistry Initiative would likely assess products and product ingredients for a wider variety of health and environmental impacts. As noted, passed in 2008, California's Green Chemistry legislation requires state regulators to develop programs for identifying and prioritizing chemicals of concern in consumer products, and to establish standards and methodologies for conducting alternative analyses.[46] In June 2011, California's OEHHA released an updated proposed regulation identifying the hazard traits, toxicological and environmental endpoints, and other relevant data the state would consider in developing standards for alternatives analysis.[47] Notably, the proposed criteria go well beyond the standards established under the voluntary DfE programs, covering additional factors like ambient ozone formation, global warming and ozone depletion potential, and risks related to particle size or fiber dimension. In October, the Department of Toxic Substances Control (DTSC) released ''informal draft'' Safer Consumer Products Regulations, proposed after 10 months of meetings following the California secretary for environmental protection's instructions to DTSC to stop working on issuing proposed regulations and instead rewrite what it had prepared to date.[48]

A third set of green chemistry standards, under development by the American Chemistry Society Green Chemistry Institute (GCI) and NSF International (NSF), would go even farther. The two entities are partnering to create the *NSF International and Green Chemistry Institute Standard for Greener Chemicals and Processes Information*, and have released several drafts for public review and comment.[49] The NSF/GCI standard includes all of the traditional hazard-based criteria (*i.e.*, human health effects, ecological impacts, and physical safety properties) identified in the DfE and California Green Chemistry Initiative programs, and also identifies a variety of process-based metrics — issues like process mass efficiency, reuse of input chemicals, toxicity of waste streams, water use, energy use, etc. — to create a more comprehensive environmental profile.[50]

These are just a few of the many third-party standards that have been developed, are under development, or that may become available during the time required for manufacturers to develop a new product.[51]

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[42] *See* A. Maynard. Don't define nanomaterials, *Nature* Vol. 475, July 7, 2011, p. 31 (''A one-size-fits all definition of nanomaterials will fail to capture what is important for addressing risk.''), *but see* letter from H. Stamm, European Commission Joint Research Centre, Institute for Health and Consumer Protection, *Nature* (size is the most appropriate parameter on which to base a definition) (Aug. 25, 2011).

[43] *See, e.g.*, EPA, DfE Safer Product Labeling web page, available at http://www.epa.gov/dfe/pubs/projects/formulat/saferproductlabeling.htm.

[44] *See, e.g.*, EPA, *Master Criteria for Safer Ingredients Version 2.0,* (July 2010), available at http://www.epa.gov/dfe/pubs/projects/gfcp/index.htm; EPA, *EPA's DfE Standard for Safer Cleaning Products (SSCP)* (April 2011), available at http://www.epa.gov/dfe/pubs/projects/gfcp/standard-for-safer-cleaning-products.pdf.

[45] *See* EPA, Design for the Environment Program Alternatives Assessment Criteria for Hazard Evaluation (Aug. 2011), available at http://www.epa.gov/dfe/alternatives_assessment_criteria_for_hazard_eval.pdf.

[46] *See, e.g.,* AB 1879 (Feuer, Chapter 559, Statutes of 2008) (mandating development of a regulatory program to identify and prioritize chemicals of concern in consumer products and create methods for analyzing alternatives to existing hazardous chemicals), and SB 509 (Simitian, Chapter 560, Statutes of 2008) (requiring evaluation and specification of the hazard traits, environmental and toxicological endpoints, and any other relevant data for consideration in assessing alternatives to existing hazardous products).

[47] California OEHHA, *Notice of Modification of Text of Proposed Regulation - Title 22, California Code of Regulations, Sections 69401 Through 69406 - Green Chemistry Toxics Information Clearinghouse Identification of Hazard Traits, Endpoints and Other Relevant Data for Inclusion in the Toxics Information Clearinghouse* (July 29, 2011).

[48] *See* Informal Draft Regulations, R-2011-02 available at http://www.dtsc.ca.gov/SCPRegulations.cfm.

[49] *See, e.g.,* NSF International and Green Chemistry Institute, Standard for Greener Chemicals and Processes Information, Tracking Number 355i1r1.22 (Draft 1.22, Sept. 7, 2010), available at http://standards.nsf.org/apps/group_public/document.php?document_id=9409.

[50] *Id.*

[51] Other examples of potential third-party certification organizations and standards include, *inter alia*, Green SealTM

One of the challenges for green product developers is determining which of these standards to follow in developing specifications for a future product or product line. This process requires critical assessments of the defensibility and adequacy of the standards themselves, the credibility and likely longevity of the certifying organizations, and the likelihood that the underlying standards will remain relevant to governments, retailers, and consumers as the green product market evolves. These are difficult questions for anyone to answer at this point as both government and consumer attitudes appear to be changing, and are not always in sync with each other.

C. Constraints and Risks Related to Green Marketing

Just as beauty is in the eye of the beholder, amorphous concepts like ''product sustainability,'' ''greenness,'' and ''environmentally friendly'' can mean many different things to different people. Indeed, as reflected in the current environmental certification industry, while some manufacturers, retailers, consumers, and government officials have embraced concepts like green chemistry, green manufacturing, and product sustainability, there is still no consensus regarding how such terms should be defined. But unlike claims of beauty, claims that a product is sustainable, green, or otherwise environmentally preferable can open manufacturers to embarrassing claims of greenwashing, if not regulatory and civil liability for false and misleading advertising[52] or substantive harms. Understanding the reputational and legal risks of unsupported environmental marketing claims, and the options for managing such risks is an important task for environmental counsel.

One of the most prominent government players regulating green marketing claims is the FTC. Section 5 of the Federal Trade Commission Act grants the commission broad powers to prohibit and prosecute unfair trade practices, including false and misleading advertising.[53] The commission has interpreted that authority to extend to false and misleading environmental marketing claims.

In 1992, the commission issued its first set of Green Guides, establishing basic principles for how it would evaluate the reasonableness of green marketing claims and offering examples of both acceptable and false or misleading claims.[54] The commission revised the Green Guides several times in the 1990s, adding or clarifying certain definitions and terms and providing additional examples, but the commission's core philosophy has remained consistent: Marketers must be able to substantiate environmental claims and should avoid making claims that are overly broad, vague, or subject to misinterpretation by an objective consumer.

As noted, in 2007, responding to the significant increase in environmental marketing claims growing out of the public's increased concerns about global climate change, toxic releases, and other environmental threats, the commission initiated a new review of the guides, culminating in the release of proposed revisions in October 2010.[55] The proposed Green Guide revisions retain the core principles of substantiation and qualification but include stronger language restricting the use of ''unqualified general environmental benefit claims'' like ''green,'' ''eco-friendly,'' and other general terms it deemed ''difficult, if not impossible, to substantiate.''[56] The proposal would require ''clear and prominent qualifying language to convey to consumers that a general environmental claim refers only to a specific and limited environmental benefit.''[57] The proposal would also tighten the scrutiny placed on environmental claims like ''recycled,'' ''recyclable,'' ''renewable,'' ''biobased,'' ''carbon neutral'' and other increasingly common claims.[58] Most notably, the commission also raised questions regarding the validity and value of the third-party certifications and seals of approval many companies currently rely upon in making environmental claims.[59]

There is little chance the commission would, or even could, denounce the entire third-party certification industry when it issues final revisions to the Green Guides. Nonetheless, FTC's skeptical attitude further reinforces the uncertainty that manufacturers face in relying upon existing standards to support green marketing claims, let alone to support long-term research and development efforts.

While the FTC may be the most prominent governmental watchdog of environmental claims at the moment, it is still just one of many sources of formal legal oversight in the crowded environmental marketing industry — not to mention the informal oversight that comes in practice from other stakeholders, including NGOs, the media, employees, community organizations, or even competitors. Many states have enacted consumer protection laws providing remedies under state law for false and misleading advertising, including environmental claims. Plaintiffs have used such laws to challenge environmental marketing claims, even in instances where companies had worked with federal regulators.

Most notably, earlier in 2011, S.C. Johnson, a consumer product company that has been a leader in advocating for ingredient disclosure and consumer education on chemical product risk, was forced to settle lawsuits filed under California and Wisconsin law. The lawsuits alleged that the company's ''GreenList'' logo, designed to identify products that had met the company's internal standards for environmental performance, were false and misleading by failing to clarify the proprietary nature of the certification. (*See* http://www.scjohnson.com/en/press-room/press-releases/07-08-2011/SC-Johnson-Settles-Cases-Involving-Greenlist-Labeling.aspx.)

(http://www.greenseal.org), GreenGuard, EcologoTM (http://www.ecologo.org), Environmentally Preferable ProductsTM (http://www.scscertified.com), and Sustainable Products CertificationTM (http://www.ulenvironment.com). For information on other standards used or developed by governmental organizations, visit http://yosemite1.epa.gov/oppt/eppstand2.nsf/Pages/Standards.html?Open.

[52] For a detailed look at potential liability *see* Greenwashing: What Your Client Should Know to Avoid Costly Litigation and Consumer Backlash, M. Diffenderfer and K. Baker, *Natural Resources & Environment*, Vol. 25, No. 3 (Winter 2011).

[53] 15 U.S.C. § 45.

[54] 57 Fed. Reg. 36,363 (Aug. 13, 1992).

[55] *See* FTC, *Guides for the Use of Environmental Marketing Claims; Proposed Revisions to Guidelines*, 75 Fed. Reg. 63,522 (Oct. 15, 2010). *See also* 193 DEN A-9, 10/7/10.

[56] *Id.*

[57] *Id.* at 63,564.

[58] *Id.* at 63,554.

[59] *Id.* at 63,564.

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The advertising industry itself also polices environmental claims, through the National Advertising Division (NAD) of the Better Business Bureau. NAD has established specific procedures allowing persons to challenge and arbitrate advertising claims that are alleged to violate industry standards like substantiation, accuracy, and precision (as opposed to vagueness). NAD typically makes the results of its arbitration proceedings public, providing companies with a useful tool for assessing how various claims have been treated within the industry in the past.[60]

Finally, even if a company evades the scrutiny of government regulators, third-party plaintiffs, and formal and informal industry watchdogs, the Internet creates a potential minefield for companies seeking to burnish their reputations (and sales) through green marketing claims. A simple Google™ search for the term ''greenwashing'' returns hundreds of thousands of hits, often leading to web sites or blogs that accuse advertisers of misrepresenting the environmental attributes of the product. Web sites like ''http://www.greenwashingindex.com''; allow consumers to rate products and advertisements for questionable green marketing techniques. These sites, sites pertaining to specific companies, blogs and ''citizen journalism,'' and the largely unregulated power they have to counter and contradict carefully planned corporate marketing messages, illustrate the importance of substance as well as marketing, and the need to design and market potential green products using carefully vetted, and clearly articulated criteria consistent with the evolving trends of consumer and regulatory acceptance.

VI. What to Do to Stay Ahead of the Curve?

Unfortunately, there is no magic formula and there are no shortcuts or quick fixes we can offer to the professional who seeks to provide meaningful, ''sustainable'' counsel (with respect either to the products or high quality advice that will lead to an enduring relationship). A few suggestions to help in this regard are noted below.

A. Know the Law

Knowing the laws that govern the business practices and products of consumer product manufacturers is the critical first step. This is essential if you are to assist in the compliance duties of the regulatory and safety functions of the company. Compliance is not the only goal. A thorough understanding of the dynamic field of environmental law, its interaction with other fields of law (such as technology law, international law, and emerging corporate social responsibility law), and the increasing refinement in the definition of safer alternatives will enable astute legal advisers to anticipate interpretive and enforcement actions by identifying better with the intent of regulatory authorities and stakeholders who can exert important compliance pressures of various sorts. This is a lively opportunity with new rules and new products emerging globally. Finding tools to assist in staying current will be invaluable if you expect to achieve the highest level of performance.

[60] Examples of recent NAD advertising challenges, addressing claims like ''nontoxic'' and ''eco-friendly,'' are available at http://www.nadreview.org.

B. Attend to Ethics, Culture, and Values

Lawyers and other business professionals in the United States and many jurisdictions in the world increasingly have formal ethical duties to bring their whole person to bear on adequately advising the client. Such duties include knowledge of social and ethical norms and moral considerations that could otherwise pose serious unanticipated and even existential risks for the client. Many companies have taken multimillion or multibillion dollar hits as a result of environmental or other scandals, including legal fines, settlements, and judgments of various kinds, and products and projects delayed or forgone. Some, such as BP, had failings that were repeatedly found by internal and external investigations to be, at root, those of basic ethics, corporate culture, and values even more than failings of formal legal compliance, although those were usually present, too. Surveys and other methods of reinforcing ethical cultures are thus vital in avoiding group-think and excessive willingness to bend the rules and the spirit (not just the letter) of the law.

C. Augment Resources As Needed

When considering available tools, consider using a broad range of information and assets.[61] The company or other entity for which you are providing counsel can have powerful resources that are specific to the products and activities of interest. Clients large enough to have a robust regulatory analyst function can provide a resource that should be leveraged. The regulatory analyst can provide a good reading of the requirements for chemical substances, ingredient use, claims and label copy in seeking compliance with registration requirements. They can also offer practical experience in enforcement. Safety officers should be separate from legal counsel and for some jurisdictions have a clear definition of their technical degree and certification requirements. Safety stands separate from, but related to, the legal compliance goals, so the safety officer can give a good sense of both the expectations of the regulatory agencies and the attitude of the client toward risk. Even if these disciplines are available within the company, it is important to seek an outside audit via an industry or trade association or other collaborative group. Many organizations permit consultant membership as well as corporate members, so consultants can be an accessible and useful resource. New technology areas such as nanotechnology or biotechnology have developed both formal and informal coalitions to address information sharing regarding compliance and the challenge of regulatory restrictions. These coalitions have proved enormously helpful.

D. Know the Client and Build a Partnership

Really knowing your client is essential in building the partnership that is required to bring successful results in guiding the business to sustainable green business success. This is a key factor whether you are serving as inside counsel, retained counsel, or occasional adviser

[61] For a discussion of some of the information gathering procedures and tools, and other approaches to enhance the effectiveness of the lawyers' role, *see, e.g.*, Joe W. (Chip) Pitts III, *Business, Human Rights, & The Environment: The Role of the Lawyer in CSR & Ethical Globalization* 26:2 Berkeley J. Int'l Law 479 (2008).

to a business that desires to compete in the opportunity defined by the green demands of the marketplace.

Of course, building a good understanding of the company for which you are working is useful in defining the scope of counsel and brings focus to the advice that you provide. However, there are the broader concerns of the direction in which the business plans to develop and the attitude of the business toward business and regulatory risk.

The business plans may not be formal, but if you are to be truly helpful to the long range success of a business, you should facilitate corporate transitions that correspond to the inevitable green marketplace developments. Adopting a wait and see compliance mentality cannot do more than chase a receding business opportunity into the future. Even if compliance is the comfort level of the company, it will need to anticipate the market by the length of the product development cycle. It will be your job to look at the regulatory changes that are happening to anticipate change. This can be accomplished by looking at legislative initiatives, rules passed in other jurisdictions that may be leading indicators, technology shifts in the market, and concerns raised by consumers or consumer advocates.

Anticipating the greening of regulations and the marketplace is significant but you will also need to recognize the risk versus reward tolerance of your client. For those clients who are highly risk averse, your role may be to give a clear picture of the current regulatory environment. Then you can provide the necessary advice to assure compliance with that legal environment and to give some guidance on the likelihood of change. By contrast, the client who is more risk tolerant deserves to have as clear a description of risks associated with anticipating the market with more aggressive green products and claims. The company may thus take greater advantage of the green market potential while measuring reward versus risk.

Partnering with your client will require understanding of its business, particularly those aspects that impact sustainability determinations. You will want to understand the impact of suppliers on the business, the controls that the business exerts on them, and the transparency of those businesses to lifecycle assessment. The processes that the client uses in manufacturing, storage, and distribution can have significant impact on the environmental footprint so you should understand them and possible alternatives. Product formulation choices are the most significant environmental impact elements of the business. Choices of ingredients, packaging, use instructions, and disposal options are all scrutinized carefully under regulations so they deserve careful review. Marketing claims that address green attributes will certainly be a subject of your review but you will need to recognize the role of marketing professionals to balance legal concerns with the goal of finding affirmative claims that reflect company efforts to build an environmentally preferable platform. Efforts to find appropriate and defensible claims will be much more appreciated than merely stating which claims are unacceptable.

E. Anticipate Global Trends

Even when a company does not intend to market globally, it is wise for the environmental/product stewardship counsel to consider global trends. We recommend monitoring the environmental and thought leaders, such as the EU with the diverse interests expressed in member countries and regions, the United States and the varying individual state initiatives, and Canada, which is more influential because of a global interest that exceeds its size. Asia has an increasing interest but seems still to be reactive rather than trend-setting.

Certainly multinational marketers will expect you to provide guidance for all markets into which they intend to introduce products. This adds an extra burden of complexity because that counsel should reflect not only the regulations of those nations and regions but also the culture. Reading about cultural differences can help but that is a constantly shifting scene so direct experience and more current contact with those who have recently engaged that market must be used to update your understanding.

For some entities, assistance in navigating the current requirements and evolving trends in sustainable product regulation from market to market will be enough. For other entities, especially market leaders with proprietary technologies or products in the marketplace or under development, compliance assistance may be a complement to a second, even more complicated need: assistance in developing advocacy strategies to influence environmental policy in the judicial, legislative, and administrative arenas. With so many business, legal, ethical, and technological considerations at play, there is an increasing need for stakeholders in developing policies around new technologies and regulatory needs. This type of advocacy requires more than just an understanding of the policies themselves — it requires a keen understanding of the legislative, regulatory, and judicial processes used to develop and shape policies. Moreover, because principles of sustainable product design and the framework for sustainable product regulation are evolving, even the most battle-tested experts are being forced to develop new networks of influence and new mechanisms for information gathering to keep up. By building coalitions or temporary alliances, you can learn a great deal about the technology, regulatory issues, and processes that will allow input to regulatory development.

VII. Conclusion

Product stewards must remain vigilant in recognizing the constantly shifting demands on them as professionals. The legal, policy, and ethical terrain is evolving and peppered both with new and exciting challenges as well as difficult legal and ethical conundrums full of pitfalls for the unwary. All the guidance that we can give is preparatory to the real learning that takes place in the doing, as no advice trumps practice and personal experience. We hope this article assists those embarking upon these endeavors.

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