Lessons from Nutritional Labeling on the 20th Anniversary of the NLEA: Applying the History of Food Labeling to the Future of Household Chemical Labeling

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Tobias J. Gillett*

Sunlight is said to be the best of disinfectants . . .
—Justice Louis D. Brandeis

I. INTRODUCTION

An average consumer looking to purchase a household chemical product and seeking to evaluate the safety or environmental toxicity of that product by checking the ingredients on the label would find her search fruitless. A container of Comet cleanser lists one ingredient on its label, sodium dichloro-s-triazinetrione dihydrate.

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1. LOUIS D. BRANDEIS, OTHER PEOPLE’S MONEY AND HOW THE BANKERS USE IT 92 (1914).

2. While the Household Product Labeling Act uses the term “household products” to refer to “household cleaning products and similar products,” this Note employs a broader definition of the term, encompassing cosmetics, pesticides, and similar products, in addition to household cleaning products. Preamble, Household Product Labeling Act of 2009, S. 1697, 111th Cong.; Preamble, Household Product Labeling Act of 2009, H.R. 3057, 111th Cong.

3. Numerous ingredients in household chemical products pose potential hazards to both human health and the environment. A brief, but by no means comprehensive, introduction to these hazards is presented infra Part IV.

4. Prestige Brands, Inc., Comet Disinfectant Powder, COMET CLEANSER, http://www.cometcleaner.com/disinfectant.htm (last updated 2011); see also Air Pollution Caused by
while a bottle of Simple Green All-Purpose Cleaner reveals no ingredients on its label.\textsuperscript{5} The label on a bottle of Christian Dior Poison Eau de Toilette spray lists “[a]lcohol, fragrance, and D&C violet No. 2,”\textsuperscript{6} while the label on a canister of Febreze Air Effects Hawaiian Aloha air freshener lists “[o]dor eliminator, water, fragrance, non-flammable natural propellant, [and] quality control ingredients.”\textsuperscript{7} Consumer rights organizations have found potentially hazardous unlisted chemicals in all of these products.\textsuperscript{8}


\textit{Air Pollution Caused by Simple Green All-Purpose Cleaner/Degreaser/Deodorizer}, ENVTL. WORKING GRP., http://www.ewg.org/schoolcleaningsupplies/cleaningsuppliesoverview?id=209 (last visited Sept. 20, 2011). While Simple Green’s website discloses some, but not all, additional ingredients under a voluntary ingredient disclosure program, a consumer would probably not have that information available at the point of purchase. \textit{See Sunshine Makers, Inc., Simple Green All-Purpose Cleaner, SIMPLE GREEN}, http://www.simplegreen.com/products_all_purpose_cleaner.php (last visited Sept. 14, 2011). Also, though Simple Green’s website reveals the presence of 2-butoxyethanol—a chemical presenting some health concerns—a consumer would not associate any of the disclosed ingredients with exposure to potentially toxic chemicals such as formaldehyde, acetaldehyde, or allylanisole, which the Environmental Working Group (EWG) found that the product released when used. \textit{See id.; Air Pollution Caused by Simple Green All-Purpose Cleaner/Degreaser/Deodorizer, supra. Such findings regarding a self-proclaimed “environmentally-sensitive non-toxic cleaner” present particular concerns. \textit{Sunshine Makers, Inc., supra.}}


\textit{The Environmental Working Group found that using Comet Disinfectant Powder Cleaner released formaldehyde, toluene, acetaldehyde, chloroform, benzene, and other chemicals linked with cancer, reproductive toxicity, hormone disruption, neurotoxicity, and asthma. Air Pollution Caused by Comet Disinfectant Powder Cleaner (Regular), supra note 4; see also infra Part IV. The EWG found that Simple Green All-Purpose Cleaner released formaldehyde, acetaldehyde, allylanisole, 2-butoxyethanol, and other chemicals linked with cancer, neurotoxicity, hormone disruption, and asthma. Air Pollution Caused by Simple Green All-Purpose Cleaner/Degreaser/Deodorizer, supra note 5; see also infra Part IV. Consumers Union, a consumer advocacy and product evaluation organization, determined that Christian Dior Poison Eau de Toilette spray (“Poison”) contained Di(2-ethylhexyl) phthalate and diethyl phthalate, both members of the phthalate class of chemicals associated with reproductive toxicity, thyroid problems, cancer, and birth defects. Consumers Union of U.S., Inc., \textit{Chemicals in Cosmetics, Fragrance Testing}, CONSUMERREPORTS.ORG, http://www.consumerreports.org/cro/promos/shopping/shopsmart/winter-2007/what-you-should-know-about-chemicals-in-your-cosmetics/fragrance-testing/0701_cosmetics_fragrance.htm (last visited Sept. 14, 2011); see also infra Part IV. A 2002 EWG study found even higher levels of phthalates in Poison bottles,
In contrast to these incomplete and uninformative examples of labeling, the food products on those same shelves display helpful labels. The “Nutrition Facts” label, which assumed its present form following the implementation of the Nutrition Labeling and Education Act of 1990, includes disclosure of all components within each food product as well as federally mandated nutrition and health information, such as the quantity of various nutrients and allergy warnings. While the present label has become ubiquitous on food products sold in the United States, the label only developed through a series of federal laws passed over the course of the

but a later 2008 EWG study found detectable levels in only one out of every four bottles, indicating that the manufacturer of Poison may be reformulating its products. See Consumers Union of U.S., Inc., supra (describing discrepancy in results from 2002 EWG study and 2007 Consumers Union study); JANE HOULIHAN ET AL., ENVTL. WORKING GRP., NOT TOO PRETTY: PHthalates, Beauty Products, and the FDA 7, 10–12 (July 8, 2002), available at http://safecosmetics.org/downloads/NotTooPretty_report.pdf (reporting results of 2002 study of name-brand beauty products, including Poison); LISA ARCHER ET AL., CAMPAIGN FOR SAFE COSMETICS, A LITTLE PRETTIER: COSMETIC COMPANIES DENY HEALTH PROBLEMS RELATED TO PHthALATES, BUT ARE THEY SECRETLY REFORMULATING? A FOLLOW UP TO THE 2002 “NOT TOO PRETTY” REPORT 5 (Nov. 2008), available at http://safecosmetics.org/downloads/A-Little-Prettier_Dec08.pdf (comparing results of EWG’s 2008 study with its 2002 study). However, due to the lack of required public disclosures, the accuracy of this supposition remains unknown. See id. at 7. The 2008 study still found substantial quantities of phthalates in other fragrances. Id. at 5–6. Notwithstanding the European Union’s ban on two of the chemicals found in Poison for use in products sold in Europe, the industry has not admitted that phthalates pose any health risks. Id. at 3, 12; Council Directive 2003/15, of the European Parliament and of the Council of 27 February 2003 Amending Council Directive 76/768/EEC on the Approximation of the Laws of the Members States Relating to Cosmetic Products, 2003 O.J. (L 66) 29 (EC). The EWG found that Febreze Air Effects Hawaiian Aloha air freshener released acetaldehyde, ethyl acetate, and other chemicals linked with cancer and neurotoxicity. Air Pollution Caused by Febreze Air Effects (Hawaiian Aloha), supra note 7. However, due to inadequate testing the composition and toxicity of most household chemical products remains unclear. See David Ewing Duncan, The Pollution Within, NAT’L GEOGRAPHIC, Oct. 2006, at 118, 133; ALEXANDRA SCRANTON, WOMEN’S VOICES FOR THE EARTH, WHAT’S THAT SMELL? HOW THE PINE FOREST IN YOUR CLEANING PRODUCT MAY BE HAZARDOUS TO YOUR HEALTH 6 (June 2010), available at http://www.womensvoices.org/wp-content/uploads/2010/06/Whats_That_Smell.pdf. The health effects of low-dose exposure to these chemicals over time, and to any combinations that those chemicals may form when released into the environment, remain unclear. See Duncan, supra, at 122–33; see also infra note 380 and accompanying text. In addition, many of these chemicals may harm the environment. See infra Part IV.


11. 21 C.F.R. § 101.
twentieth century. These laws were brought about through public and political pressure and mandated increasingly detailed disclosures. Labeling progressed from the Pure Food and Drug Act of 1906, which required little more than truthful labeling regarding the contents of a food package, to the detailed and relatively comprehensive label of the present day. Over the course of this history, food product labeling evolved into a clear, accurate, and informative source of nutrition data for consumers at the point of sale.

The present dysfunctional state of household chemical labeling came about through a combination of insufficient action by Congress and bureaucratic inertia on the part of the federal agencies responsible for chemical product regulation. The current labeling regulations for most chemical products lack full ingredient disclosure, limiting the ability of consumers to select products without chemicals they wish to avoid. At the same time, the Consumer Product Safety Act, the Federal Hazardous Substances Act, the Toxic Substances Control Act, and the regulations issued pursuant to them have burdened the enforcement process for those regulations with onerous evidentiary requirements and a lack of adequate information to evaluate the safety of chemicals. For cosmetics, the Food, Drug, and Cosmetic Act, and the FDA’s regulations issued pursuant to it, lack essential pre-market testing

12. See infra Part II.
14. Pure Food and Drugs Act of 1906, ch 3915 § 1, 34 Stat. 768.
15. Despite the relatively comprehensive statements on modern food labels, debate continues over the need to label genetic modifications and other currently undisclosed attributes of food products. See infra note 113.
16. See infra note 385.
17. See infra Part V.A; see also Rachael Rawlins, Teething on Toxins: In Search of Regulatory Solutions for Toys and Cosmetics, 20 Fordham Envtl. L. Rev. 1, 23–30 (2009) (detailing the history of government inaction concerning the labeling of potentially hazardous products).
18. See infra Part V.A; see also SCRANTON, supra note 8, at 6.
requirements and contain substantial loopholes. Moreover, the FDA has failed to adequately enforce the existing regulations. The maze of federal chemical safety regulations administered by the Consumer Product Safety Commission (CPSC or the Commission), the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), and other federal and state entities has drastically limited consumers’ capacity to protect themselves against the effects of a wide variety of potentially harmful chemical substances.

To remedy the defects of the current household chemical labeling system, Senator Al Franken of Minnesota and Representative Steve Israel of New York introduced legislation in the 111th Congress that would mandate labeling of “household cleaning products and similar products” with disclosure of all ingredients. This Note adopts that position as a starting point and proposes a new labeling scheme for all household chemicals modeled on the “Nutrition Facts” label mandated for food products. The Note reviews the history of food labeling regulation, examines present household chemical regulations, and proposes a new regulatory regime that learns from the successes and failures of food labeling past and present. Part II discusses the history of food and nutritional labeling since 1900. Part III features an overview of current household chemical labeling regulations. Part IV contains a brief introduction to some of the chemicals found in household products, including some of the known and suspected health and environmental concerns they may pose. Part V analyzes potential regulatory solutions to the problems

20. See notes 157–67 and accompanying text; see also Part V.F.
21. See Rawlins, supra note 17, at 9–16; see also infra Part V.A.
22. For a selection of the types of hazards presented by some of the common ingredients in household chemical products, see infra Part IV.
24. The proposed scheme for all household chemicals expands the scope of the current bill, which does not affect cosmetics or pesticides. See S. 1697 § 2(a)(2); H.R. 3057 § 2(b); see also 15 U.S.C. § 1261(f)(2) (2006) (excluding certain pesticides and cosmetics from the definition of “hazardous substance” under the FHSA).
25. See infra Part V.
26. See infra Part II.
27. See infra Part III.
28. See infra Part IV.
presented by the current state of household chemical labeling and suggests some forms that a new labeling scheme should adopt.  

II. THE HISTORY OF FOOD LABELING

American regulation of food adulteration and misbranding began in earnest at the dawn of the twentieth century. The rise of corporate food producers over the previous century, and America’s increasing urbanization, resulted in a powerful food processing industry which accounted for 20 percent of America’s manufacturing by 1900. The industry’s powerful government lobby, in conjunction with scant regulation, resulted in products that posed substantial threats to public health. Spurred by the work of crusading government chemists such as Dr. Harvey W. Wiley, and lurid depictions of the American food

29. See infra Part V.


33. As Dr. Harvey W. Wiley put it, “[t]he consumer has a right not be defrauded. It is more than a question of the pocketbook—and I will be glad when the money standard is not always brought up in this country—it is a great moral question. Fraud and deception are not necessary to business.” Avoid Near-Foods, Dr. Wiley’s Warning, N.Y. TIMES, Apr. 4, 1909, available at http://query.nytimes.com/mem/archive-free/pdf?res=F10A1FFB3E5A12738DDDA05B898CF1D3 (internal quotation marks omitted); see also HILTS, supra note 32, at 35–43. Wiley, later the first commissioner of the FDA, tested the toxicity of food adulterants by feeding them to a team of volunteers (the “Poison Squad”) and recording the results. JAMES HARVEY YOUNG, PURE FOOD: SECURING THE FEDERAL FOOD AND DRUGS ACT OF 1906 151–56 (1989); Harvey W. Wiley, Pioneer Consumer Activist, 40 FDA CONSUMER 34–35 (2006), available at http://www.fda.gov/AboutFDA/WhatWeDo/History/CentennialofFDA/HarveyW .Wiley/default.htm. There were reports of food products containing arsenic, sulfurous acid, wood chips, formaldehyde, borax, tree leaves, bark, and saltpeter, among other dangerous ingredients.
industry in periodicals and books such as Upton Sinclair’s *The Jungle*, Congress passed the Pure Food and Drugs Act of 1906 (PFDA). The PFDA forbade the production of “any article of food or drug which is adulterated or misbranded,” banned its sale in interstate commerce and to foreign purchasers (unless with permission of the foreign country), and provided for “examinations of specimens of foods” by the Bureau of Chemistry of the United States Department of Agriculture (USDA). As passed in 1906, the PFDA had no affirmative labeling requirement; instead, it merely required that any label applied to food packaging accurately reflect the product within the package. However, the 1913 Gould Amendment mandated that “the quantity of the contents be . . . conspicuously marked on the outside of the package in terms of weight, measure, or numerical count.” Thus, the PFDA as amended


36. Pure Food and Drugs Act of 1906, ch. 3915, § 1, 34 Stat. 768, 768. The PFDA defined food as “adulterated” if any substance had been removed or substituted, if ingredients were added intentionally to “injurious affect its quality or strength,” if the food “contain[ed] any added poisonous or . . . deleterious ingredient,” or if it contained “a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food.” *Id.* § 7. The PFDA also defined a “misbranded” food product as one that bore “any statement, design, or device regarding such article, or the ingredients or substances contained therein which shall be false or misleading in any particular.” *Id.* § 8.

37. *Id.* § 2.

38. *Id.* § 3–4.


in 1913 represented the first substantial step toward the modern nutritional labeling scheme.41

Despite its significance as groundbreaking legislation, the 1906 Act left many deceptive practices unchecked. While the new law prohibited blatant falsehoods on labels, it placed the burden of proof to prove a label or claim false on the government rather than on the manufacturer to defend its accuracy.42 The Supreme Court held in United States v. Johnson43 that the PFDA’s misbranding language only applied to those “false statements . . . [which] determine the identity of the article,” thus largely limiting the Act’s scope to false labeling regarding the identity of products rather than to any health claims on the packaging.44 The language of the 1912 Sherley Amendment, passed to correct this decision, created additional problems by requiring the government to prove that a manufacturer had intended to mislead the public in order to find a violation.45 The PFDA also mandated accurate statements on labels, but this did not apply to advertising outside of the product’s packaging.46 The law’s lack of firm standards regarding what constituted food adulteration and of any requirement that producers report the ingredients of their products meant that food products frequently did not contain the ingredients consumers would expect.47 By the 1930s, the flaws in the PFDA, and the relatively regulation-friendly atmosphere of the New Deal era, prompted the next step in food labeling regulation.48

41. Lyons & Rumore, supra note 13, at 173.
42. HILTS, supra note 32, at 54. For comprehensive and contemporaneous descriptions of the food preparation methods, adulteration problems, and food labeling laws of the period as observed by Dr. Wiley, see HARVEY WASHINGTON WILEY, FOODS AND THEIR ADULTERATION (1907) and HARVEY W. WILEY, 1001 TESTS OF FOODS, BEVERAGES AND TOILET ACCESSORIES (1914).
44. Id. at 497–98.
45. CHARLES O. JACKSON, FOOD AND DRUG LEGISLATION IN THE NEW DEAL 4 (1970). Proving intent substantially hampered prosecution, and even if the government achieved a conviction, a violation merely counted as a misdemeanor bringing with it only a $200 fine for a first offense. HILTS, supra note 32, at 54–61.
46. HILTS, supra note 32, at 54.
47. See Janssen, supra note 35, at 428.
48. Hutt & Hutt, supra note 30, at 61–62. Like the negative press that surrounded the food industry preceding the 1906 Act, a major news event helped provide the impetus for passage of the 1938 Act. See Michelle Meadows, A Century of Ensuring Safe Foods and Cosmetics, 40 FDA CONSUMER 6, 8 (2006) (“[I]t wasn’t until a drug-related tragedy occurred that a new food...
In 1938, Congress passed the Food, Drug, and Cosmetic Act (FD&C Act), intending to repair many of the holes in the previous legislation. The FD&C Act carried over much of the language concerning the adulteration of food products from the PFDA, but also granted the FDA authorization to create new food standards for identity, quality, and fill of container. In response, the FDA composed a plethora of standards for specific food products. These standards helped eliminate the previous uncertainty that had hampered enforcement of the PFDA. The broad authority granted under the FD&C Act permitted the FDA to define the characteristics of various standardized foods and required the food industry to conform to those standards.

and drug law was passed. After 107 people died from a poisonous ingredient in a product called Elixir Sulfanilamide, Congress passed the Food, Drug, and Cosmetic Act (FD&C Act) with new provisions in 1938); Federal Food, Drug, and Cosmetic Act, ch. 675, § 401, 52 Stat. 1040, 1046 (1938) (codified as amended at 21 U.S.C. §§ 301–399a (2006)). The FDA created an exhibit called the “Chamber of Horrors” that featured particularly objectionable examples of products on the market under the current law. HILTS, supra note 32, at 84. As in the period leading up to the PFDA, several notable books also exposed some of the more glaring faults of the contemporary food regulation system. See, e.g., RUTH DEFOREST LAMB, AMERICAN CHAMBER OF HORRORS: THE TRUTH ABOUT FOOD AND DRUGS (Arno Press 1976) (1936); ARTHUR KALLETT & F.J. SCHLINK, 100,000,000 GUINEA PIGS: DANGERS IN EVERYDAY FOODS, DRUGS, AND COSMETICS (1932).

50. Federal Food, Drug, and Cosmetic Act § 402. While the FD&C Act added specific requirements such as banning containers composed in part of “deleterious substance[s],” limiting the use of “coal-tar color[s],” and restricting certain ingredients in confectionery, the language regarding adulteration of food remained substantially the same. See id. §§ 301, 402.
51. Meadows, supra note 48, at 8.
52. Hutt & Hutt, supra note 30, at 64–65. The standards of identity proved extremely important in later decades, when the FDA developed standards for the enrichment and fortification of food products. Id. at 65. The years leading up to and following the FD&C Act saw the introduction of many new vitamin additives, and brought recognition of the importance of various nutrients to human health. HARVEY LEVENSTEIN, PARADOX OF PLENTY: A SOCIAL HISTORY OF EATING IN MODERN AMERICA 13–23 (Univ. of Cal. Press rev. ed. 2003) (1993). As methods for adding these nutrients to food became available, pressure on the FDA from sources such as the American Medical Association resulted in various new food standards, each defining the ingredients that manufacturers could use to create specific food products. Hutt & Hutt, supra note 30, at 65. In 1972, the FDA abandoned the “recipe” approach and amended the standards to allow all “safe and suitable” ingredients while requiring more substantial nutritional labeling. Id.; see also Dale Blumenthal, A NEW LOOK AT FOOD LABELING, 23 FDA CONSUMER 15, 15 (1989).
53. Blumenthal, supra note 52, at 15. The FD&C Act also removed the government’s burden to prove fraudulent intent when enforcing violations. Greenberg, supra note 30, at 10.
54. Hutt & Hutt, supra note 30, at 64–65.
The FD&C Act also provided far more robust and detailed requirements concerning the misbranding of food items. In addition to the standardization clauses, the FD&C Act mandated extensive packaging and labeling regulation. As well as banning all “false or misleading” labeling, the FD&C Act restricted the sale of products under the name of other foods, imitations of food products not identified as such, and packages “made, formed, or filled” in a misleading manner. It also proscribed the sale of products for which the FDA had created “definition[s] and standard[s] of identity” unless the products conformed to those definitions and standards. The FD&C Act required all packaged foods to bear a label featuring the “name and place of business of the manufacturer, packer, or distributor,” as well as “the quantity of the contents in terms of weight, measure, or numerical count.” If the FDA had not created a standard of identity for a specific product, the FD&C Act also mandated labeling that included “the common or usual name of the food, if any there be” and “the common or usual name of each . . . ingredient” where the product was made from two or more ingredients, except for “spices, flavorings, and colors.” The FD&C Act also required all regulated packaging to prominently display all information required by it. By requiring the “common or usual name[s]” of food products and mandating ingredient reporting, the

56. Id.
57. Id.
58. Id.
59. Id. Labeling under the FD&C Act encompassed “all labels and other written, printed, or graphic matters (1) upon any article or any of its containers or wrappers, or (2) accompanying such article.” Id. § 201(m). Courts have broadly interpreted this provision. See Roseann B. Termini, The Prevention of Misbranded Food Labeling: The Nutrition Labeling and Education Act of 1990 and Alternative Enforcement Mechanisms, 18 OHIO N.U. L. REV. 77, 81–84 (1991) (discussing the seminal Supreme Court case United States v. Kordel, 335 U.S. 345 (1948) and its progeny). For example, the First Circuit held in V. E. Irons, Inc. v. United States that it is “clear that the term ‘labeling’ must be given a broad meaning to include all literature used in the sale of food and drugs, whether or not it is shipped into interstate commerce along with the article.” V. E. Irons, Inc. v. United States, 244 F.2d 34, 39 (1st Cir. 1957).
60. Food, Drug, and Cosmetic Act § 403(i).
FD&C Act adopted a more consumer-oriented approach to labeling and provided the basis for much of modern food labeling regulation. The decades following the passage of the FD&C Act saw a parade of amendments further defining its scope. The 1954 Miller Pesticide Amendment granted the FDA authority to establish acceptable levels of pesticide residues in food products. The Food Additives Amendment of 1958 defined all food additives as unsafe unless they conformed to the FD&C Act or were “generally recognized . . . to be safe” and in use before passage of the Amendment. If a food additive did not meet the latter requirement, food manufacturers had to petition for approval of its use. The Color Additives Amendment of 1960 contained similar provisions for coloring agents. The Fair Packaging and Labeling Act of 1966 (FPLA) mandated labeling with regard to the quantity of contents, identity of product, name of manufacturer, and serving size for a wide range of consumer products.

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62. Meadows, supra note 48, at 8.
63. Kessler, supra note 33, at xv.
64. Hutt & Hutt, supra note 30, at 62.
65. Greenberg, supra note 30, at 10; Miller Pesticide Amendment, ch. 559, 68 Stat. 511 (1954). The Environmental Protection Agency now has the responsibility for determining acceptable levels of pesticide residues, but the FDA still has authority to enforce those levels. Greenberg, supra note 30, at 10.
products. The FPLA also stipulated that required labels be prominently placed on the package in a conspicuous type size. However, many of these requirements already appeared under the FD&C Act. Collectively, these amendments delineated the FDA’s authority under the FD&C Act and imposed additional restrictions on food manufacturers.

In 1969, the Nixon Administration convened the White House Conference on Food, Nutrition, and Health to address growing concerns regarding the nutrition content of American food products resulting from the rise in the food production, processing, and packaging industries. The event led to a major shift in the FDA’s regulatory methods. In 1973, the FDA issued regulations requiring nutritional labeling on any food product making a claim regarding its nutritional value or to which the manufacturer had added nutrients. The regulations also specified some labeling formats and various nutrients that manufacturers had to include on their labels. Additionally, the FDA required labeling of fat and cholesterol content in the nutritional labeling in a per-serving form, but only if the manufacturer first voluntarily chose to label the product with fat and

70 Lyons & Rumore, supra note 13, at 175; Fair Packaging and Labeling Act § 4.
71 Hutt & Hutt, supra note 30, at 10.
72 Greenberg, supra note 30, at 10.
74 Hutt & Hutt, supra note 30, at 68.
75 Nutrition Labeling, 38 Fed. Reg. 6,951, 6,959 (Mar. 14, 1973); see also Blumenthal, supra note 52, at 15.
76 Nutrition Labeling, 38 Fed. Reg., supra note 75, at 6,959; Blumenthal, supra note 52, at 15. The regulations required listing the serving size; calorie content; servings per container; carbohydrate, fat, and protein content; vitamin A, vitamin C, thiamin, riboflavin, niacin, calcium, and iron content. Nutrition Labeling, 38 Fed. Reg., supra note 75, at 6,959; see also Blumenthal, supra note 52, at 15. The regulations also required listing vitamin D, vitamin E, vitamin B4, folie acid, vitamin B12, phosphorus, iodine, magnesium, zinc, copper, biotin, and pantothenic acid when the manufacturer added those nutrients to the product, and permitted their listing if the nutrients naturally appeared in the product. Nutrition Labeling, 38 Fed. Reg., supra note 75, at 6,959; see also Blumenthal, supra note 52, at 15. The FDA added sodium reporting to these requirements in 1984. Lyons & Rumore, supra note 13, at 178.
cholesterol content. By 1989, a FDA study estimated that “approximately 60 percent of processed and packaged foods regulated by [the] FDA carried nutrition labeling.”

Despite these substantial new labeling requirements, significant gaps still remained in consumers’ knowledge of the nutritional value of their food. Scientific research and important reports from the Surgeon General, the National Academy of Sciences, and the Institute of Medicine increasingly revealed the close relationship between diet and health. The Dietary Guidelines for Americans, first published in 1980 by the USDA and the Department of Health, Education, and Welfare (now the Department of Health and Human Services (DHHS)), advocated important changes to average American diets. Clear evidence of links between fat and cholesterol consumption and negative effects on human health conflicted with the unrestricted voluntary labeling under the contemporary FDA regulation.

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77. Labeling of Foods With Information on Cholesterol and Fat and Fatty Acid Composition, 38 Fed. Reg. 6,961 (Mar. 14, 1973); see also Blumenthal, supra note 52, at 15.
80. Food Labeling; Mandatory Status of Nutrition Labeling and Nutrient Content Revision, 55 Fed. Reg., supra note 78, at 29,490 (detailing comments received by the FDA in preparation for potential new labeling regulation); see also Kessler et al., supra note 79, at 14.
82. See Greenberg, supra note 30, at 11.
such as fiber suggested a need for their inclusion.\textsuperscript{83} At the same time, a lack of precise standards for the labeling format had resulted in inconsistent and sometimes confusing labels.\textsuperscript{84} Units of measurement in use at the time had proven unclear to many consumers.\textsuperscript{85} Conflicting state labeling requirements made compliance difficult for manufacturers, especially because the FDA permitted some manufacturers more latitude to make health claims than others,\textsuperscript{86} and caused confusion for consumers.\textsuperscript{87} In response, commentators argued that better labeling would encourage the production of healthier foods and discourage misleading health claims.\textsuperscript{88} The deficiencies in the labeling led both the FDA and Congress to commence efforts toward new regulation.\textsuperscript{89}

Congress beat the FDA to the punch, passing the Nutrition Labeling and Education Act of 1990 (NLEA).\textsuperscript{90} The NLEA addressed the concerns surrounding the previous labeling scheme by providing national labeling requirements, granting the Secretary of the Department of Health and Human Services authority to define

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\item \textsuperscript{83} Food Labeling; Mandatory Status of Nutrition Labeling and Nutrient Content Revision, 55 Fed. Reg., supra note 78, at 29,490.
\item \textsuperscript{84} Kessler et al., supra note 79, at 14; see also Lyons & Rumore, supra note 13, at 180. The FDA had left important aspects of the format, such as typeface, type size, and label location, to manufacturers to decide. Kessler et al., supra note 79, at 14.
\item \textsuperscript{85} Kessler et al., supra note 79, at 15. The RDAs in the pre-NLEA nutritional labels listed contents in measurements such as grams and milligrams. \textit{Id}. Consumers frequently failed to understand the significance of these units. \textit{Id}.
\item \textsuperscript{86} \textit{Id}. at 14; see also Greenberg, \textit{supra} note 30, at 13 (explaining the food industry’s preference for uniform labeling throughout the nation). For an extensive discussion of the differences between federal and state nutrition labeling prior to the NLEA, see \textsc{Comm. on State Food Labeling, Inst. of Med., Food Labeling: Toward National Uniformity} 85–140 (Donna V. Porter & Robert O. Earl eds., 1992), available at http://www.nap.edu/catalog.php?record_id=2001.
\item \textsuperscript{87} Kessler et al., supra note 79, at 14; see also Edward Scarbrough, Perspectives on Nutrition Labeling and Education Act, in Nutrition Labeling Handbook 29, 47–48 (Ralph Shapiro ed., 1995).
\item \textsuperscript{88} Fred R. Shank, \textit{The Nutrition Labeling and Education Act of 1990}, 47 Food & Drug L.J. 247, 249 (1992) (explaining that the labeling requirements provided a disincentive to introduce healthier food products).
\item \textsuperscript{89} Greenberg, \textit{supra} note 30, at 11 (explaining the “two-track” effort in updating food labeling standards); see also \textsc{Committee on the Nutrition Components of Food Labeling, Inst. of Med., Nutrition Labeling: Issues and Directions for the 1990s} 63–71 (Donna V. Porter & Robert O. Earl eds., 1990) (outlining critiques of pre-NLEA food labeling).
\item \textsuperscript{90} Greenberg, \textit{supra} note 30, at 10.
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specific terminology, and giving the FDA enforcement power under the FD&C Act.\footnote{Termini, \textit{supra} note 59, at 101–03; see also Christine Lewis Taylor & Virginia L. Wilkening, \textit{How the Nutrition Food Label Was Developed, Part I: The Nutrition Facts Panel}, 108 J. AM. DIETETIC ASS’N 437 (2008) (discussing some “guiding principles” of the design of the new food label).} The new legislation dispensed with voluntary labeling for most packaged foods and required labeling of serving size in “common household measure[s],” number of servings, and calories, including identification of calories from all sources and calories from fat.\footnote{Nutrition Labeling and Education Act of 1990, Pub. L. No. 101-535, § 2, 104 Stat. 2353, 2353–57 (codified as amended at 21 U.S.C. § 343).} The NLEA also mandated the listing of the amounts of certain specified nutrients, as well as any other nutrients deemed relevant by the Secretary.\footnote{Id. The NLEA specifically required inclusion of “[t]otal fat, saturated fat, cholesterol, sodium, total carbohydrates, complex carbohydrates, sugars, dietary fiber, and total protein,” and any other nutrients that the Secretary determined would “assist consumers in maintaining healthy dietary practices.” Id.} To resolve consumer confusion over the units of measurement the new nutrition labeling included the percentage of the U.S. Recommended Daily Allowance of each nutrient.\footnote{Kessler et al., \textit{supra} note 79, at 15.} In certain circumstances, information must be in “larger type, bold face, or contrasting color.”\footnote{Termini, \textit{supra} note 59, at 95.} The NLEA also limited the health claims that manufacturers could use and gave the Secretary latitude to regulate some of the terminology employed on packaging.\footnote{Termini, \textit{supra} note 59, at 95.} The NLEA solved the problem of conflicting state laws by preempting them, expressly stating that no state could employ labeling regulations inconsistent with the national regulations.\footnote{Kessler et al., \textit{supra} note 79, at 15.} The NLEA thus addressed many of the problems identified with previous nutritional labeling and fit into a broader trend of granting the FDA considerable discretion in tackling nutritional concerns.\footnote{Kessler, \textit{supra} note 33, at xx.}
In the same year that the NLEA was passed, Congress also passed the Organic Foods Production Act of 1990 (OFPA), which instituted organic food labeling regulations.\(^9\) Congress placed the bulk of regulatory authority for this new form of labeling under the USDA’s authority rather than that of the FDA, emphasizing the OFPA’s focus on the agricultural origin of the labeled food product.\(^10\) The OFPA granted the USDA authority to establish a certification program for organic foods, including a seal indicating compliance with the USDA’s regulations and specifications concerning the use of terms such as “organic” on labels.\(^11\) The OFPA identified numerous practices that farmers would have to maintain in order to qualify for organic labeling under the OFPA.\(^12\) The OFPA also permitted states to request to establish organic certification programs at least as restrictive as the USDA’s standards.\(^13\) In addition, the OFPA established a National Organic Standard Board to “assist in the development of standards for substances to be used in organic production” and to advise the government in the implementation of the organic certification program.\(^14\) The OFPA and ensuing USDA regulations created a new labeling standard focused more on the production process rather than on the end product.\(^15\)

Congress established another variety of food labeling with the passage of the Dietary Supplement Health and Education Act of 1994

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11. Organic Foods Production Act §§ 2104–2106; see also Terence J. Centner & Kyle W. Lathrop, Differentiating Food Products: Organic Labeling Provisions Facilitate Consumer Choice, 1 Drake J. Agric. L. 30, 42–43 (1996). The USDA has created definitions for the terms “100% organic,” “organic” (at least 95% organic ingredients), and “made with organic” (at least 70% organic ingredients), and it permits products with less than 70% organic ingredients to list their organic ingredients in the nutrition label. U.S. Dep’t of Agric., National Organic Program Online Training, available at http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5080172. The USDA has also enacted detailed requirements for the format of the organic label and seal, such as typeface, color, and location, as well as methods for calculating the ingredient percentages. Id. In addition, the USDA has restricted claims that a food product has a superior level of “organicness.” Id.
13. Id. § 2108.
14. Id. § 2119.
15. Friedland, supra note 100, at 384.
The DSHEA defined a new category of products that were considered neither foods nor drugs. Intended to give the FDA the power to address safety concerns regarding supplements, to ensure proper labeling of supplements, and to increase the availability of dietary supplements to consumers, the DSHEA has proven to be highly controversial. The law halted attempts by the FDA to regulate dietary supplements as food additives, which would have required pre-approval of supplements before use, and instead established a new dietary supplement subcategory.

The DSHEA mandated labeling requirements for dietary supplements and


110. See Dietary Supplement Health and Education Act § 3. The DSHEA defined a “dietary supplement” as "a product (other than tobacco) intended to supplement the diet" containing

(A) a vitamin; (B) a mineral; (C) an herb or other botanical; (D) an amino acid; (E) a dietary substance for use by man to supplement the diet by increasing the total dietary intake; or (F) a concentrate, metabolite, constituent, extract, or combination of any ingredient described in clause (A), (B), (C), (D), or (E).

Id. (internal quotation marks omitted). The DSHEA also defined “dietary supplement” as a product that “is not represented for use as a conventional food or as a sole item of a meal or the diet,” that “is intended for ingestion,” and that “is labeled as a dietary supplement.” Id. (internal quotation marks omitted); see also Martin Hahn, Functional Foods: What Are They? How Are They Regulated? What Claims Can Be Made?, 31 AM. J.L. & MED. 305, 315 (2005). Critics have argued that this definition does not provide the FDA sufficient guidance concerning what it should consider a “dietary supplement.” See generally Suzan Onel, Dietary Supplements: A Definition That Is Black, White, and Gray, 31 AM. J.L. & MED. 341 (2005).

111. Dietary Supplement Health and Education Act § 7. The DSHEA required dietary supplement labels to “identify the product by using the term ‘dietary supplement;’” to display the name and quantity of each ingredient listed in Section 201(ff) of the FD&C Act, including “vitamin[s],” “mineral[s],” “herb[s] or other botanical[s],” “amino acid[s],” “dietary substance[s] for use by man to supplement the diet by increasing the total dietary intake,” and
prescribed limits on health claims that manufacturers could make, but specifically exempted them from regulation as food additives. The DSHEA also gave the FDA authority to regulate unsafe supplements as adulterated food products, but placed the burden of proof on the FDA to prove a supplement unsafe. In effect, the DSHEA limited the scope of the FDA’s regulatory discretion in relation to a substantial class of ingestible products.

“concentrate[s], metabolite[s], constituent[s], extract[s], or combination[s] of” each of the above; to include the quantity of each of those ingredients in a “proprietary blend,” to identify all plant parts from which those ingredients are derived; and to accurately represent the identity, strength, quality, and purity of the supplement. Id.; Food, Drug, and Cosmetic Act § 201(ff).

112. Id. § 6. The DSHEA allowed certain claims regarding “classical nutrient deficiency disease[s]” but barred claims that a supplement could “diagnose, mitigate, treat, cure, or prevent a specific disease or class of diseases.” Id. Before the passage of the DSHEA, the FDA restricted claims on the basis of language in the FD&C Act that defined drugs as “articles (other than food) intended to affect the structure or any function of the body.” See Federal Food, Drug, and Cosmetic Act, § 201(g), 52 Stat. 1040, 1041 (1938) (codified as amended at 21 U.S.C. § 321 (2006)); see also Hahn, supra note 110, at 323. However, the narrower language in the DSHEA forced the FDA to expand the category of health claims that it had previously allowed for food products under the NLEA in order to avoid inconsistent application of its regulations. See id.

113. Dietary Supplement Health and Education Act § 3(b).

114. Id. § 4. The DSHEA permitted the FDA to consider a supplement “adulterated” if it “presents a significant or unreasonable risk of illness or injury under . . . conditions of use recommended or suggested in labeling, or . . . if no conditions of use are suggested or recommended in the labeling, under ordinary conditions of use,” or if there is “inadequate information to provide reasonable assurance” that no “significant or unreasonable risk” exists. Id.


In 2004, Congress expanded the reach of American food labeling regulation to address a new challenge posed by allergens in food products by passing the Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA).\footnote{117} The FALCPA required labeling of a class of “major food allergen[s]” known to cause a majority of serious allergic reactions.\footnote{118} The FALCPA also required the FDA to improve the collection of data concerning food allergens\footnote{119} and to convene a panel of experts to review current research efforts on food allergens.\footnote{120} The FALCPA responded to the particular needs of a specific class of consumers regarding their food products.\footnote{121}

Consumers, the food industry, and other interested parties have continued to push for further amendments to American food labeling regulations in order to address other topics of concern to them. Some of these proposals have advocated regulations to aid specific groups of consumers, such as children\footnote{122} and vegans.\footnote{123} Others have pushed for regulations to address specific segments of the food industry, such as producers of fast food.\footnote{124} Still others have suggested the need for regulations to account for advances in food production technology,
such as genetically modified foods. In addition, increased availability of nutrition information online and through other technological means has begun to supplement the traditional labeling on packaging, potentially affecting numerous aspects of future labeling. Food labeling will continue to evolve as technology, consumer movements, and political change inspires new regulations.

III. CURRENT STATUS OF HOUSEHOLD CHEMICAL LABELING

Federal law currently regulates household chemical labeling under a variety of different statutes and administrative agencies. Under the Consumer Product Safety Act (CPSA), the CPSC has the authority to regulate all products intended for use by consumers, subject to a range of exceptions. This includes the primary

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[A]ny article, or component part thereof, produced or distributed (i) for sale to a consumer for use in or around a permanent or temporary household or residence, a school, in recreation, or otherwise, or (ii) for the personal use, consumption or enjoyment of a consumer in or around a permanent or temporary household or residence, a school, in recreation, or otherwise;]


129. 15 U.S.C. § 2052(a)(5). The exceptions include “any article which is not customarily produced or distributed for sale to, or use or consumption by, or enjoyment of, a consumer,” tobacco and tobacco products, motor vehicles or motor vehicle equipment, pesticides, firearms and ammunition, aircraft, and certain aircraft parts, boats, drugs, devices, or cosmetics, as
authority to regulate labeling of household chemicals, except for those regulated by the FDA under the FD&C Act, the EPA under the Federal Insecticide, Fungicide, and Rodenticide Act, and a few more minor exceptions.\footnote{130} Much of the agency’s current household chemical labeling scheme has come from rules issued pursuant to the CPSA, along with several other federal laws.\footnote{131} The CPSA grants the CPSC the authority to issue “[r]equirements that a consumer product be marked with or accompanied by clear and adequate warnings or instructions, or requirements respecting the form of warnings or instructions.”\footnote{132} However, in order to proceed under the CPSA,\footnote{133} the CPSC must find that the regulation “is reasonably necessary to eliminate or reduce an unreasonable risk of injury,” that it “is in the public interest,” that any “voluntary consumer product safety standard” employed is inadequate, that the “benefits expected from the rule bear a reasonable relationship to its costs,” and that the regulation “imposes the least burdensome requirement” that eliminates the hazard posed.\footnote{134} Thus, the CPSC can issue warnings or labels pursuant to the CPSA only after a thorough, individualized rulemaking process based on substantial evidence.\footnote{135} The CPSA also contains reporting provisions that require manufacturers to inform the

\footnote{130} 15 U.S.C. § 2052(a).
\footnote{131} \textit{See} Noah, supra note 127, at 299–301.
\footnote{133} Until 2008, the CPSC had to determine that the hazard presented “could not be regulated sufficiently under” the FHSA or that it was “in the public interest to proceed under” the CPSA. Consumer Product Safety Act § 30, 15 U.S.C. § 2079(d) (2006) (repealed 2008); see also Gulf S. Insulation v. U.S. Consumer Prod. Safety Comm’n, 701 F.2d 1137, 1149–50 (5th Cir. 1983) (explaining that the CPSC only has authority to regulate dangerous products under 15 U.S.C. § 2079(d) if the risk “could not be regulated sufficiently under” the FHSA, or if it was “in the public interest to proceed under” the FHSA, and that this requirement cannot be altered by the CPSC’s desire to avoid the FHSA’s formal rulemaking requirement). The CPSIA’s repeal of section 2079(d) may change the result in cases like \textit{Gulf South Insulation}, and recently proposed rules by the CPSC indicate that it intends to exercise the new authority provided by the repeal. \textit{See, e.g., Consumer Product Safety Comm., Proposed Determination That Children’s Upper Outerwear in Sizes 2T to 12 with Neck or Hood Drawstrings and Children’s Upper Outerwear in Sizes 2T to 16 with Certain Waist or Bottom Drawstrings Are a Substantial Product Hazard 6 (May 11, 2010), available at http://www.cpsc.gov/library/foia/foia10/brief/drawstrFRdraft.pdf.}
\footnote{135} Rawlins, supra note 17, at 25–26.
CPSC if any of their products “create[e] an unreasonable risk of serious injury or death,” have a defect that “could create a substantial product hazard,” or that do not comply with the CPSA or any voluntary safety standards relied upon by the CPSC.\(^{136}\)

The Federal Hazardous Substances Act (FHSA), passed in 1960, provides the Commission with expanded authority to regulate the labeling of “hazardous substances.”\(^{137}\) Rules issued pursuant to the FHSA form the bulk of CPSC labeling requirements for chemical products, and much litigation has centered around whether a particular product meets the FHSA’s definition of a “hazardous substance.”\(^{138}\) The FHSA considers a “hazardous substance” misbranded if it does not bear a label complying with the requirements of the FHSA.\(^{139}\) A chemical is a “hazardous substance” if it is toxic, corrosive, an irritant, a strong sensitizer, flammable or combustible or “generates pressure through decomposition, heat, or other means.”\(^{140}\) Under the FHSA and the regulations enacted pursuant to it, the CPSC bears the burden of proving that a hazardous substance meets the FHSA’s definition of “toxic,”\(^{141}\) that humans

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\(^{138}\) WAGNER, supra note 127, at 2–3.

\(^{139}\) 15 U.S.C. § 1261(p). The label must conspicuously display “the name and place of business of the manufacturer, packer, distributor or seller,” as well as “the common or usual name or the chemical name (if there be no common or usual name) of the hazardous substance of each component” that contributes substantially to its hazard. Id. The FHSA also requires the label to bear the word “DANGER” on “flammable, corrosive, or highly toxic” substances, the words “WARNING” or “CAUTION” on all other hazardous substances and the word “Poison” on any product considered “highly toxic,” along with a statement indicating why it is hazardous (i.e., “flammable,” “vapor harmful,” etc.), and descriptions of appropriate precautions and treatments. Id.


\(^{141}\) The FHSA defines “toxic” as “any substance . . . which has the capacity to produce personal injury or illness to man through ingestion, inhalation, or absorption through any body surface.” 15 U.S.C. § 1261(g). The CPSC’s regulations supplement the FHSA’s definition of “toxic” to include “acute toxicity,” substances causing death to certain specified laboratory animals within fourteen days, and “chronic toxicity,” substances containing known or probable human carcinogens, neurotoxins, or developmental or reproductive toxicants. 16 C.F.R.
have the potential to be exposed to it, and that it carries “a significant risk of an adverse health effect.” The FHSA also permits the CPSC to ban hazardous substances intended for use in the household if the Commission determines that such a ban is necessary to protect the public. However, the FHSA’s extensive rule-making procedure involves hearings and detailed findings of fact before action may be taken pursuant to the Act. These procedures have limited the scope of the CPSC’s enforcement under the FHSA.

The Poison Prevention Packaging Act of 1970 (PPPA) requires additional packaging for some products that could poison children. The PPPA permits the CPSC to mandate “special packaging of any household substance” if it finds that requiring such packaging would protect children from harm caused by “handling, using, or ingesting” the product. However, the PPPA specifically denies the CPSC the authority to prescribe special labeling for those products, except when the need to keep products accessible to “elderly or handicapped persons” overrides the need for “special packaging . . . designated or constructed to be significantly difficult for children under five years of age to open or obtain a toxic or harmful amount of the substance contained therein.” The PPPA also amends the FHSA, the FD&C

§ 1500.3(c)(2) (2006). Guidelines issued for determining the chronic toxicity of a substance suggest “sufficient” or “limited” evidence of its status as a human carcinogen, or “sufficient” evidence of that status based on animal studies, must exist. Id. § 1500.135(a)-(c). These guidelines exclude possible carcinogens, neurotoxins, or developmental or reproductive toxicants, including “agents with ‘limited’ evidence of carcinogenicity from animal studies.” Rawlins, supra note 17, at 24.

142. See 16 C.F.R. § 1500.135(d); see also Rawlins, supra note 17, at 24–26. The Guidelines state that an “adverse health effect” exists where the exposure level “is above the acceptable daily intake.” 16 C.F.R. § 1500.135(d).

143. 15 U.S.C. § 1261(q); see also Rawlins, supra note 17, at 23.


145. See Rawlins, supra note 17, at 23–30.


147. Poison Prevention Packaging Act § 3.

148. Id.

149. Id. §§ 2, 4. In those circumstances, the PPPA would require a label reading: “This package for households without young children,” or a substitute label when the size of the package would not permit that message. Id. § 4. Under limited circumstances, a manufacturer may petition for exemption from the PPPA’s requirements. 16 C.F.R. § 1702 (2009).
Act, and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) to apply its provisions to the products regulated under those laws.¹⁵⁰

In 2008, in response to public health scares caused by the presence of lead in children’s toys,¹⁵¹ Congress enacted the Consumer Product Safety Improvement Act (CPSIA).¹⁵² The CPSIA amended many consumer protection laws, including the CPSA, the FHSA, and the CPSC’s rules issued pursuant to those acts.¹⁵³ While controversial,¹⁵⁴ the CPSIA significantly expanded the CPSC’s ability to regulate the manufacture of products intended for children¹⁵⁵ and provided for substantial agency reforms, including budget enhancements.¹⁵⁶ The CPSIA also added labeling requirements for children’s products, mandating that manufacturers affix permanent “tracking labels” to those products.¹⁵⁷ These labels must permit the “ultimate purchaser to ascertain the manufacturer or private labeler, location and date of production of the product, and cohort information (including the batch, run number, or other identifying

¹⁵³ Id.
characteristic). The CPSIA labeling requirements represent Congress’s attempt to determine the source of a product in the event of a recall or for other safety purposes.

In addition to the laws mandating labeling on products directed at consumers, the Occupational Safety and Health Act of 1970 (OSHA) established the Occupational Safety and Health Administration and mandated communication of hazards to employees in the workplace. This communication may include the “use of labels or other appropriate forms of warning as are necessary to insure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure.” The OSHA’s Hazard Communication Standards require chemical manufacturers to create material safety data sheets for all hazardous chemicals and label hazardous chemicals not regulated by other federal agencies and laws.

The regulations provide for hazard warnings for chemicals posing “health hazards” and “physical hazards.” The regulations

158. Id. § 2063(a)(5)(B). The CPSIA also disallowed any “reference to a consumer product safety rule or a voluntary consumer product safety standard unless such product conforms with the applicable safety requirements of such rule or standard.” Id. § 2063(d).


161. Id. at 1736–39; 29 C.F.R. § 1910.1200(b) (2009).

162. Hazard warnings are defined as “any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s).” 29 C.F.R. § 1910.1200(c).

163. “Health hazards” are defined as “chemical[s] for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.” 29 C.F.R. § 1910.1200(c). Health hazards include “chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.” Id.
also provide for “material safety datasheets” that must be maintained in each workplace and that must contain the names of any ingredients posing hazards, the hazards posed, emergency and safe handling information, and producer identification information. Manufacturers must convey the sheets to employers, and employers must provide information and training to employees. Because these regulations apply to chemicals employed in workplaces, they do not necessarily affect the labeling of chemicals that consumers would purchase for use in the home. Further, the safety datasheets only communicate known hazards and do not provide for ingredient disclosure.

Though the CPSC exercises primary jurisdiction over most chemical products, other agencies also have substantial authority to regulate the labeling of household chemicals. Under the FD&C Act and the FPLA, the FDA has control over the labeling of chemicals considered to be foods, drugs, or cosmetics. While foods and drugs do not present the same risks as household chemicals and generally do not contain the same component chemicals, cosmetics include a wide range of chemicals applied to the human body, and incorporate many of the same chemicals employed in the manufacture of household chemical products.

165. 29 C.F.R. § 1910.1200(f). Physical hazards are defined as “chemical[s] for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.” 29 C.F.R. § 1910.1200(c).
166. 29 C.F.R. § 1910.1200(g).
167. 29 C.F.R. § 1910.1200(g)-(h).
172. The FD&C Act defines cosmetics as:
(1) articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance, and (2) articles intended for use as a component of any such articles; except that such term shall not include soap.
173. See CTRS. FOR DISEASE CONTROL & PREVENTION, U.S. DEP’T OF HEALTH AND HUMAN SERVS., FOURTH NATIONAL REPORT ON HUMAN EXPOSURE TO ENVIRONMENTAL CHEMICALS (2009), available at http://www.cdc.gov/exposurereport/pdf/FourthReport.pdf (reviewing environmental chemicals to which humans are exposed, including the sources of the

https://openscholarship.wustl.edu/law_journal_law_policy/vol37/iss1/12
Act and the FPLA, cosmetics must bear a label indicating "the name and place of business of the manufacturer, packer, or distributor; and . . . an accurate statement of the quantity of the contents in terms of weight, measure, or numerical count." The regulations issued by the FDA have expanded on this requirement, mandating that cosmetics must "bear a declaration of the name of each ingredient in descending order of predominance." This requirement goes beyond that established by the CPSC for household chemical products in that an ingredient does not have to meet the FHSA's definition of a "hazardous substance" in order to be subject to the labeling requirement. However, the labeling requirements contain significant loopholes. For example, manufacturers may obtain exemptions for both fragrances and trade secrets. In addition, despite regulatory language seeming to require the testing of every ingredient prior to use, the FDA has not actually required such testing in practice, so the accuracy of the statements on most labels remains unevaluated.
In 2011, Representatives Jan Schakowsky, Ed Markey, and Tammy Baldwin introduced the Safe Cosmetics Act of 2011 (SCA of 2011) in the House of Representatives. The proposed legislation would amend the FD&C Act to require registration of cosmetics producers and more stringent labeling on cosmetics products, among other provisions. Labels on cosmetics products would have to list the names of all ingredients, including fragrances and preservatives currently exempted under the FD&C Act. Cosmetic product labels

181. Safe Cosmetics Act of 2011, H.R. 2359, 112th Cong. (2011); Press Release, Office of Congresswoman Jan Schakowsky, Reps. Schakowsky, Markey, Baldwin Introduce Bill to Protect Consumers and Workers From Harmful Chemicals in Cosmetics (June 24, 2011), http://schakowsky.house.gov/index.php?option=com_content&task=view&id=2948&Itemid=16 (last visited Sept. 18, 2011). However, as of 2005, the Cosmetic Ingredient Review had evaluated only 11 percent of ingredients used in cosmetics. Consumer Update—FDA Fails to Protect Consumers, ENVTL. WORKING GRP. (Oct. 5, 2005), available at http://www.ewg.org/skindeep/2005/10/05/fda-fails-to-protect-consumers; see also Rawlins, supra note 17, at 11–12. In addition, the Environmental Working Group challenged at least a few of the assessments that had been performed, and found that ingredients determined by the CIR to be unsafe were still in products. ENVTL. WORKING GRP., supra; see also Rawlins, supra note 17, at 11–12. Current law may even provide an incentive for the industry to avoid testing. See Wendy E. Wagner, Choosing Ignorance in the Manufacture of Toxic Products, 82 CORNELL L. REV. 773, 852 (1997) (arguing that the legal standards for toxic tort liability make remaining ignorant about the hazards of chemicals “the rational choice for manufacturers today”).


183. H.R. 2359 § 613. Under the SCA of 2011, the term “ingredient” would include “chemicals that provide a technical or functional effect;” “chemicals that have no technical or functional effect in the cosmetic but are present by reason of having been incorporated into the cosmetic as an ingredient of another cosmetic ingredient;” “processing aids that are present by reason of having been added to a cosmetic during the processing of such cosmetic;” “substances that are present by reason of having been added to a cosmetic during processing for their technical or functional effect;” “the components of a fragrance, flavor, or preservative;” and “any individual component of a petroleum-derived, animal-derived, or other ingredient that the Secretary deems an ingredient.” H.R. 2359 § 611(4)(A). The new legislation would also cover “contaminants present at levels above technically feasible detection limits” and “contaminants that may leach from container materials or form via reactions over the shelf life of a cosmetic and that may be present at levels above technically feasible detection limits.” Id. § 611(4)(B).
would have to disclose all of the products’ “ingredient[s] . . . in descending order of predominance,” as well as all contaminants present at the lower of “[a] level that is greater than one part-per-billion by weight of product formation” or a “level that is greater than one percent of the restriction on the concentration for such contaminant for such use,” as determined by the FDA under the Act. The Act would also require labeling of nanomaterials. The SCA of 2011 would dispense with many current exemptions, such as those for fragrances and trade secrets, although the concentration of ingredients in a cosmetic would remain confidential, and affected entities could petition for certain information to remain confidential “if the entity show[ed] that there would be a serious negative impact to the entity’s commercial interests if such information were disclosed to the public.” These labeling provisions would significantly expand the information available to consumers at the point of purchase.

In addition to the increased labeling requirements, the SCA of 2011 would impose a range of other health and safety requirements. The proposed legislation would require the FDA to apply a “reasonable certainty of no harm standard” to cosmetic products, and establish good manufacturing practices for cosmetics.

184. Id. § 613(a).
185. Id. § 613(c).
186. Id. § 613(d).
187. Id. § 611(4)(A).
188. Id. § 613(f).
189. Id. § 623(b).
190. Id. § 623(c). The FDA could not approve a petition if the petition would prevent public disclosure of “the name, identity, and structure of any chemical substance, contaminant, or impurity that is an ingredient,” “all health and safety data related to that substance, contaminant, or impurity,” or “any data used to substantiate the safety of that substance, contaminant, or impurity.” Id.
192. The SCA of 2011 would define “reasonable certainty of no harm” to mean that “no harm will be caused to members of the general population or any vulnerable population by aggregate exposure to the cosmetic or ingredient.” This definition would take into account “low-dose exposures to the cosmetic or ingredient,” “additive effects resulting from repeated exposure to the cosmetic or ingredient over time” and “cumulative exposure resulting from all sources, including both the cosmetic or ingredient and environmental sources.” H.R. 2359 § 611(7).
Manufacturers would have to submit safety information to the FDA concerning each cosmetic product and its ingredients, and regularly update that information. The FDA would use this data to establish a publicly accessible database on the safety of cosmetics. The FDA would evaluate the safety of cosmetics ingredients using data available to it from manufacturers and “authoritative source[s],” and would place each ingredient on one of three lists, a “prohibited and restricted list,” a “safe without limits list,” and a “priority assessment list.” No cosmetic product could be manufactured unless it was in compliance with the safety standard.

193. H.R. 2359 § 614. The FDA would have to ensure that “the likely level of exposure to all sources of the ingredient or cosmetic (including environmental sources) that will result under the safety standard presents not more than a 1 in a million risk for any adverse health effect in any vulnerable population at the lower 95th percentile confidence interval,” or “the safety standard results in exposure to the amount or concentration of an ingredient or cosmetic that is shown to produce no adverse health effects, incorporating a margin of safety of at least 1,000 and considering the impact of cumulative exposure from all sources (including environmental sources).” Id.

194. H.R. 2359 § 615(a). Manufacturers would have to supply information concerning “[f]unctions and uses,” “[d]ata and information on the physical, chemical, and toxicological properties of each such ingredient or cosmetic,” “[e]xposure and fate information,” “[r]esults of all safety tests that the manufacturer can access or has conducted,” and “[a]ny other information used to substantiate the safety of such ingredient and cosmetic.” Id.

195. H.R. 2359 § 615(b).

196. H.R. 2359 § 616(a). The FDA would consider whether each ingredient “reacts with other substances to form harmful contaminants,” “is found in drinking water or air,” “is a known or suspected neurological or immunological toxicant, respiratory asthmagen, carcinogen, teratogen, or endocrine disruptor, or has other toxicological concerns (including reproductive or developmental toxicity),” or “is known to persist in the environment or bioaccumulate.” Id.

197. H.R. 2359 § 616(b-d). The prohibited and restricted list would contain ingredients prohibited from use in cosmetics products due to their failure to meet the safety standard, and ingredients limited only to specific applications where their use would comply with the standard. H.R. 2359 § 616(b). The “safe without limits” list would include ingredients determined by the FDA to be safe for use in cosmetics regardless of the cosmetic the ingredient was used in or the concentration of the ingredient in the product. H.R. 2359 § 616(c). The “priority assessment” list would include ingredients “which, because of a lack of authoritative information on the safety of the ingredient,” could not be listed on either the “prohibited and restricted” or the “safe without limits” lists, and for which the FDA had determined a safety assessment was a priority. H.R. 2359 § 616(d). If “insufficient information” existed, the FDA would provide guidance to the manufacturer concerning the additional information needed to make an assessment. Id. The manufacturer would have eighteen months to either “reformulate such cosmetic to eliminate the use of the ingredient” or provide the necessary information. Id. If the FDA could not place the ingredient on either the “prohibited and restricted” or the “safe without limits” lists within five years, the ingredient would be prohibited from use in cosmetic products. Id.
although the FDA would apply a presumption of safety to any cosmetic made solely out of ingredients on the “safe without limits list” or out of ingredients in compliance with the “prohibited and restricted list.” The FDA would publish a list of ingredients and cosmetics containing or creating contaminants, and establish testing requirements for cosmetics manufacturers and ingredient suppliers. The SCA of 2011 would also require manufacturers to file a statement with the FDA concerning each cosmetic product produced. Manufacturers, packagers, retailers, and distributors would have to notify the FDA if they had reason to believe that a cosmetic product was adulterated or misbranded in an unsafe manner. The SCA of 2011 would grant the FDA authority to request voluntary recalls, order cessation of distribution, and issue mandatory recall orders. The proposed legislation would also provide for a petition process by which the public could request the FDA to take specific actions on ingredients. In addition, the

198. H.R. 2359 § 617. The FDA could still require a manufacturer to demonstrate a cosmetic product’s safety if it had reason to believe that the product might not meet the safety standard. Id.

199. H.R. 2359 § 618. The list would include “ingredients used in cosmetics that may contain contaminants,” “combinations of ingredients that may create contaminants when such ingredients interact,” “contaminants that may leach from product packaging into a cosmetic,” and “any other contaminant of cosmetics identified by the Secretary.” Id.

200. Id.

201. H.R. 2359 § 619. The statement would contain “the registration number of the manufacturing establishment where the cosmetic is manufactured or, if the same cosmetic is manufactured in more than 1 establishment, the registration number of each establishment where it is manufactured,” “the registration number of the establishment responsible for distributing the cosmetic,” “the brand name and the product name for the cosmetic,” “the applicable use for the cosmetic,” “the ingredient list as it appears on the cosmetic label or insert, including the particle size range of any nanoscale cosmetic ingredients,” “any warnings and directions for use from the cosmetic label or insert,” and “the title and full contact information for the individual responsible for submitting and maintaining such statement.” Id.

202. H.R. 2359 § 620(a).

203. H.R. 2359 § 620(b-f). The FDA could order cessation of distribution if it found reason to believe that “the use of, or exposure to, a cosmetic may cause serious adverse health effects or death to humans,” “the cosmetic is misbranded,” or “the cosmetic is manufactured, packaged, or distributed by an unregistered facility.” H.R. 2359 § 620(c). The recall provisions would provide for an appeals process. H.R. 2359 § 620(c), H.R. 2359 § 620(e). In the event of a recall, the FDA would have the power to order a producer to reveal supply chain information. H.R. 2359 § 620(g).

204. H.R. 2359 § 621. Such actions could include “prohibit[ing] or restrict[ing] an ingredient for use in cosmetics and list[ing] such ingredient on the [prohibited or restricted] list,” “remov[ing] an ingredient from the list of ingredients that are safe without limits,”
legislation would require manufacturers, packagers, and distributors to report any adverse health effects stemming from their cosmetic products, and make such reports publicly accessible. Although limited to cosmetic products, the SCA of 2011 would establish a labeling regime supported by information acquisition provisions and enforcement authority.

The Environmental Protection Agency also exercises substantial authority to regulate the production of chemicals under the Toxic Substances Control Act (TSCA). Unlike the FHSA, many of the TSCA’s provisions apply prior to the release of chemical products into the marketplace, including “premanufacture notification” to the EPA of intended production or importation of a

“add[ing] an ingredient to the priority assessment list,” or “add[ing] an ingredient to the list of contaminants.” Id. § 622. A report would include “[t]he identity of the individual experiencing the adverse health effect,” “[a]n identifiable report of such effect,” “[t]he name of the cosmetic suspected of causing such effect,” and “[a] description of the adverse health effect.” Id. § 622.


new chemical substance. While the TSCA does not provide for any labeling of the substances it regulates, it does mandate extensive data collection by the EPA and reporting by manufacturers. Furthermore, the TSCA confers on the EPA the powers to mandate testing of chemicals believed to pose a risk to health or the environment and to limit their production. However, chemicals produced prior to passage of the TSCA “were assumed safe until proven dangerous and could be used with no limitations.” Before ordering testing or limiting or banning production, the EPA must show that a chemical “may present an unreasonable risk of injury to health or the environment.”


214. 15 U.S.C. § 2603(a) (2006). The Fifth Circuit’s decision in Corrosion Proof Fittings v. E.P.A., 947 F.2d 1201 (5th Cir. 1991), exemplifies the difficulties faced by the EPA under this standard. Rawlins, supra note 17, at 34–35. The court vacated the EPA’s attempt to ban asbestos and held that the EPA failed to adequately evaluate less burdensome alternatives and the “toxicity of likely substitute products that will be used to replace asbestos goods.” Corrosion Proof Fittings, 947 F.2d at 1216–20, 1229–30; Rawlins, supra note 17, at 34–35. The court also criticized the merits of the EPA’s cost-benefit analyses. Corrosion Proof Fittings, 947 F.2d at 1216–20, 1229–30; Rawlins, supra note 17, at 34–35. As a result of this decision, the EPA “deemphasized” this method of regulating chemicals, apparently finding it “too resource-intensive and too subject to subsequent court challenges to justify the effort.” ELIZABETH C. BROWN ET AL., TSCA DESKBOOK 58 (1999). Thus, despite having the power to limit the production of chemicals posing an “unreasonable risk,” the EPA has only exercised that power five times since 1976 (over polychlorinated byphenyils (PCBs), chlorofluorocarbons (CFCs), dioxins, asbestos, and hexalent chromium). U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-05-458, CHEMICAL REGULATION: OPTIONS EXIST TO IMPROVE EPA’S ABILITY TO ASSESS HEALTH RISKS AND MANAGE ITS CHEMICAL REVIEW PROGRAM 58–60 (2005); see also Andrew Hanan, Note, Pushing the Environmental Regulatory Focus a Step Back: Controlling the Introduction of New Chemicals Under the Toxic Substances Control Act, 18 AM. J.L. & MED. 395 (1992) (reviewing burdens placed on the EPA under Corrosion Proof Fittings and arguing that proper regulation of toxic substances requires greater agency deference); Albert C. Lin, SIZE MATTERS: REGULATING NANOTECHNOLOGY, 31 HARV. ENVTL. L. REV. 349, 367 (2007) (arguing that “the evidentiary burdens and procedural requirements that TSCA imposes on [the] EPA” make it unsuitable for regulating products of nanotechnology).
testing or data submission concerning toxicity with the premanufacture notification. Pursuant to the TSCA, the EPA maintains the TSCA Inventory, a list of chemicals currently produced in or imported into the United States. The EPA also requires the filing of a variety of reports concerning a manufacturer’s chemical products. However, the TSCA restricts public access to this information, protecting the confidentiality of much of the data except health and safety studies and some voluntarily submitted.

215. Richard Denison, EPA’s New Chemicals Program: TSCA Dealt EPA a Very Poor Hand, ENVTL. DEF. FUND, (Apr. 16, 2009), available at http://blogs.cdf.org/nanotechnology/2009/04/16/epas-new-chemicals-program-tsca-dealt-epa-a-very-poor-hand/; Wilson & Schwarzman, supra note 19, at 1205. While the EPA has authority under the Act to require testing of chemicals, this may only occur after the EPA issues a testing rule. U.S. GOV’T ACCOUNTABILITY OFFICE, supra note 214, at 19. This requires some basis for concluding the chemical poses a risk and creates an expensive and time-consuming hurdle for the EPA. Rawlins, supra note 17, at 32–33. The result is “what amounts to a classic Catch-22, government must already have information sufficient to document potential risk, or at the very least, extensive exposure, in order to require the development of information sufficient to determine whether there is actual risk.” Denison, supra note 213, at 10,020. As a result, the EPA has required testing of only about 200 of the 62,000 chemicals in production at the enactment of the Act in 1976. \textit{Id.}; \textsc{overview: office of pollution prevention and toxics programs, envtl. prot. agency} 15 (2007), available at http://www.epa.gov/oppt/pubs/opp101c2.pdf.


217. \textsc{lewis & thunder}, supra note 209, at 35. For purposes of the TSCA, a “new” chemical is one not already included in the Inventory. \textit{Id}.

218. 15 U.S.C. § 2608(a) (2006); 15 U.S.C. § 2607(c)-(e) (2006). The EPA has mandated a broad spectrum of reporting requirements under the Act, including reports concerning quantities and production facilities of chemicals subject to the Preliminary Assessment Information Rule, updating of data in the TSCA Inventory, reporting of data concerning health and safety, and reporting of allegations of negative impacts on health and the environment. 40 C.F.R. § 712.28 (2009); 40 C.F.R. §§ 710.23–710.32 (2009); 40 C.F.R. §§ 716.1–716.65 (2009); 40 C.F.R. §§ 717.1–717.19 (2009); see also \textsc{lewis & thunder}, supra note 209, at 107–40. The EPA also monitors the reporting of chemicals that could pose “a substantial risk of injury to health or the environment,” as required under Section 8(e) of the TSCA. 15 U.S.C. § 2607(e) (2006); \textsc{office of pesticides and toxic substances, envtl. prot. agency}. TSCA Section 8(e) Reporting Guide 1 (1991), available at http://www.epa.gov/oppt/tsca8e/pubs/1991guidance.pdf. Though the EPA considers such reporting “critically important,” it has not issued reporting regulations because it has determined Section 8(e) is “self-implementing.” \textsc{office of pesticides and toxic substances, supra}.

information.\textsuperscript{220} The TSCA also requires the EPA to file a report with an agency administering another law regulating chemicals when the EPA determines that use of that law could reduce an “unreasonable risk of injury to health or the environment.”\textsuperscript{221} Theoretically, the TSCA grants the EPA broad authority to regulate chemical manufacturing.\textsuperscript{222} In practice, however, administrative constraints, including the high standard of evidence required before the EPA can take action, have substantially narrowed its reach.\textsuperscript{223}

In the 112th Congress, Representatives Bobby Rush and Henry Waxman introduced the Toxic Chemicals Safety Act of 2010 (TCSA) in the House of Representatives, and Senator Frank Lautenberg introduced the Safe Chemicals Act of 2010 (SCA of 2010) in the Senate.\textsuperscript{224} Both pieces of legislation sought to reform the TSCA.\textsuperscript{225} Among other provisions, the TCSA and the SCA of 2010 would require manufacturers to submit “data sets” to the EPA so that the EPA could make safety determinations.\textsuperscript{226}

\begin{footnotes}
\item[220] LEWIS & THUNDER, supra note 209, at 205–06.
\item[222] Rawlins, supra note 17, at 32–33.
\item[226] H.R. 5820 § 4(a); S. 3209 § 5(a). The minimum data set under the TCSA would have to provide information including the "(i) chemical identity; (ii) substance characteristics; (iii) biological and environmental fate and transport; (iv) toxicological properties; (v) volume
\end{footnotes}
also would permit the EPA to, by order, “require testing in addition to the requirements for the minimum data set.” Additionally, both Acts would require manufacturers to submit notice to the EPA when manufacturing a new chemical, or when employing a previously produced chemical for a new use, and would not permit the manufacture or use of the chemical unless the EPA first found that the chemical met certain safety standards and conditions. Both Acts would require the EPA to establish a “priority list” of at least 300 chemicals currently in use, and apply a safety standard to those chemicals. The manufacturer would “bear the burden of proving that the chemical substance” met the safety standard. The EPA would make safety determinations publicly available, and would manufactured, processed, or imported; (vi) intended uses; and (vii) exposures from all stages of the chemical substance or mixture’s lifecycle that are known or reasonably foreseeable to the party submitting the data set.” H.R. 5820 § 4(a). The SCA of 2010 would leave the definition of the data set to the EPA, and would require only “information on substance characteristics and on hazard, exposure, and use of chemical substances and mixtures that the Administrator anticipates will be useful in conducting safety standard determinations.” S. 3209 § 5(a).

227. H.R. 5820 § 4(b); S. 3209, § 5(b) (adopting similar language).
228. H.R. 5820 § 5(a); S. 3209 § 5(a). The TCSA would permit the EPA to exempt the use of a chemical if the EPA determined a use was a “critical use,” defined as one “in the paramount interest of national security;” or one whose “restriction would significantly disrupt the national economy;” or one that “is a critical or essential use,” and “no feasible safer alternative for the specified use is available;” or “the specified use of the chemical substance or mixture provides a net benefit to health or the environment when compared to all available alternatives.” H.R. 5820 § 5(a); H.R. 5820 § 6(e). The SCA of 2010 provides a method by which chemicals not anticipated to be “manufactured in a volume of more than 1,000,000 pounds annually or released into the environment in a volume of more than 100,000 pounds annually” could be permitted to be manufactured without meeting the safety standards, if it also was not, and was not anticipated to be, a “known, probable, or suspected reproductive, developmental, neurological, or immunological toxicant, carcinogen, mutagen, or endocrine disruptor, or has other toxicological properties of concern;” “persistent and bioaccumulative;” “found in human cord blood, or otherwise found in human blood, fluids, or tissue, unless the chemical substance or metabolite or degradation product is naturally present at the level commonly found in that medium;” or “found in food, drinking water, ambient or indoor air, residential soil, or house dust, unless the chemical substance or metabolite or degradation product is naturally present at the level commonly found in that medium.” S.3209 § 5(a).
229. H.R. 5820 § 6. The TCSA’s safety standard would require that “with regard to public health, there is a reasonable certainty that no harm will result, including to vulnerable populations; and . . . the public welfare is protected.” Id. The SCA of 2010 would similarly apply a “reasonable certainty of no harm” standard, requiring that aggregate and cumulative “exposure of the general population or of any vulnerable population to the chemical substance or mixture presents a negligible risk of any adverse effect on the general population or a vulnerable population.” S.3209 § 4(23).
restrict the manufacture of chemicals that did not meet the safety standards (although the TCSA would permit exemptions for “critical uses”). Under the proposed legislation, a manufacturer would have to submit a declaration for each chemical and mixture that would include a variety of safety data known to the manufacturer. The EPA would use this information to establish a publicly accessible internet database concerning chemical substances and mixtures and their toxicity. The TCSA and the SCA of 2010 would thus impose more extensive testing, safety, and disclosure requirements than federal law currently mandates, although they would not establish an affirmative labeling requirement of the kind anticipated by the Household Product Labeling Act. In 2011, Senator Lautenberg introduced the Safe Chemicals Act of 2011, legislation substantially similar to the SCA of 2010.

231. H.R. 5820 § 6; S. 3209 § 7.
232. H.R. 5820 § 8(a); S. 3209 § 9. Under the TSCA, the information would have to reveal the following: the “chemical identity of the chemical substance or mixture,” the “name and location of each facility” manufacturing it, the “number of individuals exposed, and reasonable estimates of the number who will be exposed, to such substance or mixture in their places of employment and the duration of such exposure,” and a list of “health and safety studies conducted or initiated by or for, known to, or reasonably ascertainable by the manufacturer or processor.” H.R. 5820 § 8(a). In addition, manufacturers would have to supply information known to or readily ascertainable by the manufacturer regarding the “physical, chemical, and toxicological properties of the chemical substance or mixture,” “the categories or proposed categories of intended use,” amounts manufactured and reasonable estimates of amounts to be manufactured, byproducts of manufacturing, “exposure information,” “conditions currently placed on the chemical substance or mixture due to regulation” or voluntary action, and “any information indicating that a mixture including the chemical substance has substance characteristics that are different from the substance characteristics of the named chemical substances.” Id. The SCA of 2010 would require the disclosure of similar information. S. 3209 § 9.
233. Id. § 8(d).
Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the EPA also has primary authority to regulate the labeling of pesticides, fungicides, and rodenticides. The FIFRA considers a pesticide misbranded if it does not bear a label containing an “ingredient statement”; the manufacturer’s registration number; directions for proper use of the product; any necessary “warning or caution” statements; the “use classification” for which the product was registered; the name and address of the manufacturer; the “name, brand, or trademark” of the product; and “the net weight or measure of the content.” If the pesticide contains “highly toxic” ingredients, the label must also display “the skull and crossbones”; “the word ‘poison’ prominently in red on a background of distinctly contrasting color”; and “a statement of a practical treatment (first aid or otherwise) in case of poisoning.” The “ingredient statement” must contain “the name and percentage of each active ingredient and the total percentage of all inert ingredients.” Thus, under the FIFRA, the EPA has established another labeling regulatory scheme separate from those employed by other agencies, with somewhat stricter requirements reflecting the known toxicity of the contents.

Some members of Congress have recognized deficiencies in current household chemical labeling practices and have introduced

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237. The FIFRA defines a pesticide as “(1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, (2) any substance or mixture of substances intended for use as a plant regulator, defoliating, or desiccant, and (3) any nitrogen stabilizer.” 7 U.S.C. § 136(a) (2006).

238. 7 U.S.C. § 136(q). The labeling also must not mislead consumers, and all information required to appear in the labeling must be featured prominently enough so as to render it “likely to be read and understood by the ordinary individual under customary conditions of purchase and use.” 7 U.S.C. § 136(q) (2006).


240. The EPA labeling regulations are also distinguished by their relative focus on environmental impacts of the regulated products as well as their effects on consumer health. See, e.g., 7 U.S.C. § 136(1)(F) (2006) (requiring that directions for use be “adequate to protect health and the environment”); 7 U.S.C. § 136(1)(G) (2006) (requiring that “warning or caution” statements be “adequate to protect health and the environment”).
legislation to address them. In 2008, Senator Frank Lautenberg of New Jersey introduced the Kid-Safe Chemicals Act (KSCA) in the Senate, and Representative Hilda Solis of California—now Secretary of Labor under President Barack Obama—introduced it in the House of Representatives. Among other provisions, the KSCA would amend the TSCA to require chemical manufacturers to test the safety of their products and certify that they meet the safety standard established in the bill, as well as submit updated information to the EPA if new data concerning a product’s toxicity appears. Manufacturers would not be allowed to sell new chemical products prior to a safety determination by the EPA. The bill would also impose on the EPA the duty to regularly assess the safety of chemicals sold in commerce, beginning with a list of “priority” chemicals. The bill would require the EPA to conduct “biomonitoring” to determine the amount of commonly sold chemicals in human tissue, as well as any other chemicals about which the EPA has particular concerns.

245. H.R. 6100 § 502; S. 3040 § 502; see also Kid-safe Chemicals Are Now Within Our Reach, ENVTL. WORKING GRP., http://www.ewg.org/kid-safe-chemicals-act-blog/kid-safe-chemicals-act (last visited Sept. 20, 2011). The bill mandates a “safety standard” that would provide “a reasonable certainty that no harm will be caused by aggregate exposure of a fetus, infant, child, worker, or member of other sensitive subgroup to the chemical substance” and would be “requisite to protect the public welfare from any known or anticipated adverse effects associated with the chemical substance.” H.R. 6100 § 501(5); S. 3040 § 501(5).
246. H.R. 6100 § 504(b)(3); S. 3040 § 504(b)(3).
247. H.R. 6100 § 504(b)(1); S. 3040 § 504(b)(1). The bills would require reassessments every fifteen years. H.R. 6100 § 504(b)(2); S. 3040 § 504(b)(2).
248. H.R. 6100 § 506; S. 3040 § 506.
for the informational role served by labeling, the bill would mandate that the EPA create a publicly accessible database of “any information provided to the Administrator relating to the properties and hazards of a chemical substance” and “any other nonconfidential information relating to a chemical substance.” The bill would expand the EPA’s authority under the TSCA to protect vulnerable groups from chemical hazards and to inform the public about those hazards.

In the 111th Congress, Senator Al Franken introduced legislation directly addressing the need for improved household chemical labeling in the Senate, and Representative Steve Israel introduced such legislation in the House of Representatives. The bill, known as the Household Product Labeling Act (HPLA), would have mandated that all “household cleaning product[s] or similar product[s]” carry labels displaying “a complete and accurate list of all the product’s ingredients.” The HPLA would have treated any product not bearing such a label as “a misbranded hazardous substance” as defined by the FHSA. The HPLA would have granted the CPSC authority to enforce the new legislation through regulation.

The legislation represented an opportunity to structure an appropriate household chemical labeling regime, and indicated that legislators and the public have recognized the need for such

249. H.R. 6100, § 512; S. 3040 § 512.
250. The legislation puts a particular focus on vulnerable groups such as “fetus[es], infant[s], child[ren], worker[s],” and other groups. H.R. 6100 § 501(5); S. 3040 § 501(5). It also addresses concerns with “prenatal exposure” in special sections of the proposed laws. H.R. 6100 § 505; S. 3040 § 505.
255. The bill would have defined a “household cleaning product or similar product” as any substance that is “customarily produced and distributed for use in or about a household as a cleaning agent, pesticide, epoxy, paint or stain, or similar substance.” H.R. 3057 § 2(b); S. 1697 § 2(b).
256. H.R. 3057 § 2(a); S. 1697 § 2(a).
257. H.R. 3057 § 2(a); S. 1697 § 2(a).
258. H.R. 3057 § 2(c); S. 1697 § 2(c).
labeling. However, the bills reached the Senate Committee on Commerce, Science, and Transportation and the House Subcommittee on Commerce, Trade, and Consumer Protection, but were not voted on in the 111th Congress. While other legislation that would serve some of the same purposes as the HPLA, such as the TSCA, the SCA of 2010, and the SCA of 2011, have been introduced since the HPLA, the HPLA itself has not as yet been reintroduced.

While federal law provides the majority of chemical labeling requirements, numerous state laws also mandate various labeling and information disclosures California’s Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, is one of the most important state laws impacting labeling. Proposition 65 bars any “person in the course of doing business” in the state from “knowingly and intentionally expos[ing] any individual to a chemical known to the state to cause cancer or reproductive toxicity without first giving clear and reasonable warning to such individual.”


264. CAL. HEALTH & SAFETY CODE § 25249.6. A warning can “be provided by general methods such as labels on consumer products, inclusion of notices in mailings to water customers, posting of notices, placing notices in public news media, and the like, provided that the warning accomplished is clear and reasonable.” Id. § 25249.11(f). The actual warning provided can vary somewhat depending on the product involved and the risk presented; a typical warning would read either “WARNING: This product contains a chemical known to the State of California to cause cancer” or “WARNING: This product contains a chemical known
violator “may be enjoined in any court of competent jurisdiction” and “shall be liable for a civil penalty not to exceed two thousand five hundred dollars ($2,500) per day for each violation.”

The law also requires the Governor of California to publish “a list of those chemicals known to the state to cause cancer or reproductive toxicity.” The law relies on court actions commenced by either the state attorney general or private parties to achieve its goals, placing an emphasis on citizen action rather than on agency enforcement. The results are controversial. Critics have noted the high cost to

to the State of California to cause birth defects or other reproductive harm.” CAL. CODE REGS. tit. 27, § 25603.2 (2008).

265. CAL. HEALTH & SAFETY CODE § 25249.7.

266. Id. § 25249.8. Under Proposition 65:

A chemical is known to the state to cause cancer or reproductive toxicity within the meaning of this chapter if in the opinion of the state’s qualified experts it has been clearly shown through scientifically valid testing according to generally accepted principles to cause cancer or reproductive toxicity, or if a body considered to be authoritative by such experts has formally identified it as causing cancer or reproductive toxicity, or if an agency of the state or federal government has formally required it to be labeled or identified as causing cancer or reproductive toxicity.

Id. § 25249.8(b). A chemical poses “no significant risk,” and therefore does not require a warning statement, only if it would “result in one excess case of cancer [or less] in an exposed population of 100,000, assuming lifetime exposure at the level in question . . . except where sound considerations of public health support an alternative level . . . .” CAL. CODE REGS. tit. 27, § 25703(b) (2008), or would cause “no observable [reproductive] effect at one thousand (1,000) times the level in question.” CAL. CODE REGS. tit. 27, § 25801(a) (2008). These amounts “can be orders of magnitude below federal regulatory levels and, of course, below levels set by any other state.” Trenton H. Norris, Consumer Litigation and FDA-Regulated Products: The Unique State of California, 61 FOOD & DRUG L.J. 547, 549 (2006). The law places the burden of proof on the manufacturer of a chemical product to show that the product meets the statutory limits. CAL. HEALTH AND SAFETY CODE § 25249.10(c).

267. CAL. HEALTH & SAFETY CODE § 25249.7. These provisions, along with a provision granting 25% of penalties to the plaintiff, id. § 25192(a)(2), and a California civil procedure provision awarding attorney’s fees for lawsuits conferring “a significant benefit . . . on the general public,” led to a surge in litigation following the passage of Proposition 65. CAL. CIV. PROC. CODE § 1021.5 (West 2008); see also Norris, supra note 266, at 550–52. However, amendments to this section penalizing frivolous lawsuits, requiring court approval for Proposition 65 settlements, and mandating reporting of those settlements have diminished the impact of the legislation. CAL. HEALTH & SAFETY CODE § 25249.7; see also Norris, supra note 266, at 550–52.

businesses of defending against Proposition 65 lawsuits, the potential dilution of federal regulatory power, and the failure to adequately inform consumers beyond a basic warning statement. Defenders praise its success in forcing manufacturers to reformulate their products, the potential for citizen involvement and consequential bypass of sometimes weak and politically hamstrung enforcement agencies, and the placement of the burden of proof and responsibility on manufacturers. Nevertheless, Proposition 65 serves as another possible environmental enforcement model and indicates the potential for state action in the field under the current regulatory structure.

270. Norris, supra note 266, at 558–60.
271. Clifford Rechtschaffen, The Warning Game: Evaluating Warnings Under California’s Proposition 65, 23 ECOLOGY L.Q. 303, 332–41 (1996). Critics have also pointed to the problem of “over-warning,” suggesting that businesses will apply labels even when little danger exists and consequently, consumers will begin to ignore labels when they appear on too many products. Id. at 355–59.
272. Id. at 341–48.

Although many household chemical manufacturers oppose the HPLA, a group of major manufacturers have also agreed to voluntarily disclose many (but not all) ingredients in their household cleaning products. AMERICAN CLEANING INSTITUTE, CONSUMER PRODUCT
might not be universal. While hardly representing the views of a majority of the chemical industry, these efforts indicate that opposition to labeling legislation behind-the-bottle/natural (last visited Sept. 20, 2011). While hardly representing the views of a majority of the chemical industry, these efforts indicate that opposition to labeling legislation might not be universal.
Since the passage of Proposition 65, California has continued to pursue initiatives requiring chemical product manufacturers to disclose more information about the ingredients in their products. The Safe Cosmetics Act of 2005 requires manufacturers of cosmetic products regulated by the FDA that “contain any ingredient that is a chemical identified as causing cancer or reproductive toxicity” to submit to the state Division of Environmental and Occupational Disease Control a list of those cosmetic products. The statute also permits the Division to conduct investigations of cosmetic products, and to request from the manufacturer any “relevant health effects data and studies.” The California Division of Occupational Safety and Health can then use the results to formulate occupational health standards. In 2008, the California Assembly passed Assembly Bill 1879, and the California Senate passed Senate Bill 509, establishing the Green Chemistry Initiative. Among other provisions, this initiative requires the California Department of Toxic Substances Control (DTSC) to adopt regulations that “establish a process to identify and prioritize those chemicals or chemical ingredients in consumer products that may be considered as being a chemical of concern,” and to evaluate “adverse impact[s] on public health or the environment, including air, water, or soil, that may result from the production, use, or disposal” of the products, and of

277. CAL. HEALTH & SAFETY CODE § 111792.
278. CAL. HEALTH & SAFETY CODE § 111792.5.
279. CAL. HEALTH & SAFETY CODE § 111793.
283. CAL. HEALTH & SAFETY CODE § 25252 (West 2010).
alternative products. Under the statute, the DTSC must also adopt regulations specifying a range of regulatory responses that the Department may take following an analysis of a chemical and its alternatives, including labeling, banning, or not taking any action. It also requires the DTSC to convene a “Green Ribbon Science Panel” of experts in the field to advise the Department, and to create a “Toxics Information Clearinghouse,” a publicly accessible online database “for the collection, maintenance, and distribution of specific chemical hazard trait and environmental and toxicological end-point data.” Implementation of the Green Chemistry Initiative has proven difficult and controversial, and the DTSC’s regulations remain under development.


285. Id. § 25253. The actions the Department may take under the statute include the following: “[n]ot requiring any action,” “[i]mposing requirements to provide additional information,” “[i]mposing requirements on the labeling or other type of consumer product information,” “[i]mposing a restriction on the use of the chemical of concern,” “[p]rohibiting the use of the chemical of concern,” “[i]mposing requirements that control access to or limit exposure to the chemical of concern,” “[i]mposing requirements for the manufacturer to manage the product at the end of its useful life,” “[i]mposing a requirement to fund green chemistry challenge grants,” and “[a]ny other outcome the department determines accomplishes the requirements of” the statute. Id. § 25253(b).

286. Id. §§ 25254–25255.

287. Id. § 25256.

In September 2010, the New York State Department of Environmental Conservation (NYSDEC) took actions that may lead to substantial ingredient disclosure by household chemical product manufacturers. The NYSDEC announced it would enforce a New...
York law, not enforced since its passage in 1976, that gives the Department the authority to mandate the reporting of the ingredients of household cleansing products. Under the law, all manufacturers of household cleansing products sold in the state of New York must provide “a list naming each ingredient which equals or exceeds five percent of the contents of the product by weight and specifying the content by weight of each ingredient to the nearest percent,” “a list naming each ingredient which does not equal or exceed five percent of the contents of the product by weight,” and “the nature and extent of investigations and research performed by or for the manufacturer concerning the effects on human health and environment of such product or such ingredients.” While not requiring labeling, the law would require cleansing product manufacturers to reveal significantly more information about the ingredients of their products than current federal law requires. However, the range of products to which this law applies may be somewhat more limited.

The statute applies only to “cleansing products” and not to the full range of chemical products used in homes. In September 2010, the NYSDEC requested various stakeholders, including “state officials, cleansing product manufacturers, and representatives of environmental non-government organizations,” to convene to discuss the implementation of the law.
range of its authority under the statute, the law could affect sales of cleansing products nationwide, since major chemical manufacturers generally sell the same products in every state. However, the law would not provide such information at the point of purchase, as a labeling scheme would, nor would it cover the full range of products, ingredients, and hazards that present concern.


The regulatory efforts in California and New York represent particularly significant examples of state attempts to mandate household chemical ingredient disclosure due to the size of their markets and the extent of the regulations involved. However, those states are hardly unique in their efforts, and state regulation presents possible models, opportunities, and conflicts that decisionmakers may have to take into account when developing federal regulations.\footnote{Available at \url{http://ec.europa.eu/environment/chemicals/reach/pdf/2007_02_reach_in_brief.pdf}. \(\text{REACH}\) does not provide for labeling beyond that required under previous directives. \(\text{Classification & Labeling, EUROPEAN CHEMICALS AGENCY, http://guidance.echa.europa.eu/classification_label_en.htm (last visited Sept. 20, 2011). The Agency and member states evaluate the producer’s submission, and the results can lead to restrictions on the distribution of the products, including a potential ban. \(\text{REACH Processes, EUROPEAN CHEMICALS AGENCY, http://guidance.echa.europa.eu/reach_processes_en.htm (last visited Sept. 20, 2011). The producers must obtain authorization to employ chemicals of high concern. Id. Although this does not equate to a full point-of-purchase labeling system, the European Commission expects that the information gathered, and the evaluation and authorization process, will help reduce the environmental damage and negative health effects of certain chemicals. EUROPEAN COMMISSION, \textit{REACH IN BRIEF}, supra, at 15–16. \(\text{REACH}\) has already impacted the way producers manufacture their products and is the model for some state legislation. MARK SCHAPIRO, EXPOSED: THE TOXIC CHEMISTRY OF EVERYDAY PRODUCTS AND WHAT’S AT STAKE FOR AMERICAN POWER 187–88 (2007).} \(\text{299. In addition to the recent regulatory actions in California and New York, numerous other provisions of recent state legislation addressing toxic chemicals in household products suggest that a new trend may be developing. LeBel, supra note 260, at 71. For example, in Massachusetts, the Safer Alternatives Bill seeks to replace toxic chemicals with safer alternatives where feasible and would fund consumer education programs about “toxic substances.” An Act for a Competitive Economy through Safer Alternatives to Toxic Chemicals, S. 397, 2011 Leg., 187th Sess. (Mass. 2011); An Act for a Competitive Economy through Safer Alternatives to Toxic Chemicals, H. 1136, 2011 Leg., 187th Sess. (Mass. 2011); ALLIANCE FOR A HEALTHY TOMORROW, THE SAFER ALTERNATIVES BILL: AN ACT FOR A COMPETITIVE ECONOMY THROUGH SAFER ALTERNATIVES TO TOXIC CHEMICALS 2 (2011), available at \url{http://cdn.publicinterestnetwork.org/assets/LaPKs4Y6dz-VgHbNUL_Asafe-products-made-safely-10-sa-bill-fact-sheet-1092.pdf}. Massachusetts has already implemented the 1989 Toxics Use Reduction Act, a law focused on reducing toxic chemical use by companies using large quantities of them. MASS. GEN. LAWS ch. 21I, §§ 1–23 (2010); \textit{Toxics Use Reduction Act (TURA), MASS. DEP’T OF ENVTL. PROTECTION, http://www.mass.gov/dep/toxics/toxicsus.htm (last visited Sept. 20, 2011) (explaining the legislation’s requirements). In Washington, the Children’s Safe Products Act, enacted in 2008, prohibits the sale of children’s products containing a variety of chemicals and requires the state Department of Ecology to identify other chemicals that could pose health concerns. WASH. REV. CODE § 70.240.010-060 (2010); CSPA—Waste 2 Resources, State of Washington Dep’t of Ecology, http://www.ecy.wa.gov/programs/swfa/cspa/ (last visited Sept. 20, 2011) (explaining legislation’s requirements). In Michigan, legislation with the same name, the Children’s Safe Products Act, passed the Michigan House of Representatives in May 2009 and would require chemical products manufacturers to disclose whether or not their products contain certain “chemicals of highest concern.” H.B. 4763-4769, 95th Leg., Reg. Sess. (Mich. 2009). The bill failed to pass the}}
Michigan Senate, but legislators plan to reintroduce it in 2011. Press Release, Michigan Network for Children’s Envtl. Health, State Senator to Introduce Bill that Helps Protect Michigan Kids from Toxic Chemicals in Children’s Products (Jan. 19, 2011), available at http://www.earthcenter.org/resource/20110119_PressRelease-1.pdf. In Maine, the Kid Safe Products Act, enacted in 2008, requires the state Department of Environmental Protection to publish a list of “chemicals of high concern” and to identify “priority chemicals” from that list, and compels manufacturers of children’s products to disclose to the Department any of their products that contain those priority chemicals. ME. REV. STAT. ANN. tit. 38, §§ 1691–1699 (2009); see also DEPT’ OF ENVTL. PROTECTION, STATE OF MAIN, CHEMICALS OF HIGH CONCERN LIST (July 17, 2009), available at http://www.maine.gov/dep/oe/safechem/high_concern/DEP.CHC.web.short_list_7_16_09.pdf. The Act also permits the Department to ban the sale of children’s products if sale of the product would expose “children and vulnerable populations to the priority chemical” and “[o]ne or more safer alternatives to the priority chemical are available at a comparable cost.” tit. 38, § 1696. In Minnesota, the Toxic-Free Kids Act, enacted in May 2009, requires the state Department of Health to publish and regularly revise a list of “chemicals of high concern,” identify priority chemicals from that list, and publish lists of those priority chemicals “in the State Register and on the department’s Internet Web site.” MNN. STAT. § 116.9401-116.9407 (2009); Chemicals of High Concern and Priority Chemicals, MNN. DEPT’ OF HEALTH, STATE OF MINNESOTA, http://www.health.state.mn.us/divs/eh/hazardous/topics/toxfreekids/index.html (last visited Sept. 20, 2011). In 2010, Connecticut passed legislation establishing a Chemical Innovations Institute at the University of Connecticut Health Center that will “foster green job growth and safer workplaces [by] encouraging clean technology innovation and [the] utilization of green chemistry” and “provide assistance to businesses, state agencies and nonprofit organizations that seek to utilize alternatives” to harmful chemicals. CONN. GEN. STAT. § 22a-903 (2011); Chemical Innovations Institute, UNIV. OF CONN. HEALTH CTR., http://oehc.uchc.edu/centers_CIIasp (last visited Sept. 20, 2011). These state laws represent only a few of the more significant state laws and are only a sample of a complex and rapidly changing area of law. See Press Release, Safer Chemicals, Healthy Families, 30 States Nationwide to Announce Upcoming Bills to Protect Kids and Families from Toxic Chemicals on Wed. Jan 19 (Jan. 18, 2011), available at http://www.saferchemicals.org/2011/01/30-states-nationwide-to-announce-upcoming-bills-to-protect-kids-and-families-from-toxic-chemicals-on.html claiming that “on Wednesday, January 19, legislators and advocates in thirty states across the country and the District of Columbia will announce legislation aimed at protecting children and families from harmful chemicals” and that “18 state legislatures have already passed 71 chemical safety laws in the last eight years.”); see also MIKE BELLIVEAU, SAFER CHEMICALS, HEALTHY FAMILIES & SAFER STATES, HEALTHY STATES: PROTECTING FAMILIES FROM TOXIC CHEMICALS WHILE CONGRESS LAGS BEHIND 12 (2010), available at http://www.saferchemicals.org/PDF/reports/HealthyStates.pdf. The Safer States coalition is a network of state environmental organizations pursuing the reform of state chemicals regulation. About Safer States, SAFER STATES, http://www.saferstates.com/about/index.html (last visited Sept. 20, 2011). While not specifically providing for any labeling or warning statements on product packaging, these laws indicate an increased willingness in state legislatures to regulate household chemical products and may put pressure on the federal government to pass its own regulations.

IV. HOUSEHOLD CHEMICAL INGREDIENTS POSING HEALTH AND ENVIRONMENTAL CONCERNS

The ingredients of many household chemical products may present a wide array of health and environmental concerns for those who purchase and use them. The following selection of common ingredients should not be considered a comprehensive assessment of household chemical health and environmental risks, nor is it a comprehensive assessment of the potential risks of any of the individual chemicals included. However, it should provide a solid introduction to the kinds of health and environmental issues that exposure to these chemicals may cause. As their hazards have become more apparent, manufacturers have reduced their use of some of these chemicals; however, most chemicals remain untested, and their potential effects insufficiently evaluated.

A. Health Effects

1. Formaldehyde

Perhaps better known for its role in preserving corpses, formaldehyde appears in numerous household chemical products, including cleaning products, cosmetics, and paints. Many household chemical products (including furniture polishes, paints, car cleaners, powder and liquid cleaners, hair care products, nail care products, and hand soaps, among other products) contain formaldehyde as either an ingredient or an impurity. See generally SKIN DEEP COSMETICS DATABASE, ENVTL. WORKING GRP., http://www.ewg.org/skindeep/search.php?query=formaldehyde&=Go (last visited Sept. 20, 2010) [hereinafter Skin Deep]; Chemical Profile for Formaldehyde, SCORECARD: THE POLLUTION INFORMATION SITE, http://scorecard.goodguide.com/chemical-profiles/summary.tcl?edf_substance_id=50%2d00%2d0 (last visited Sept. 20, 2010); AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, U.S. DEPT. OF HEALTH AND HUMAN SERVICES, TOXFAQS: FORMALDEHYDE 1 (1999), available at http://www.atsdr.cdc.gov/tfacts111.pdf. Consumer groups have raised particular concerns about the...
U.S. Department of Health and Human Services officially determined that “[t]he use of formaldehyde, along with phthalates and toluene, as an ingredient in nail polishes.”


302. DEPT. OF HEALTH & HUMAN SERVS., REPORT ON CARCINOGENS, TWELFTH EDITION (2011), available at http://ntp.niehs.nih.gov/ntp/roc/twelfth/profiles/Formaldehyde.pdf. However, the DHHS had evidence of formaldehyde’s potential as a human carcinogen at least as early as 1981, when the agency labeled it as “reasonably anticipated to be a human
World Health Organization has also determined that formaldehyde is a carcinogen, and other countries have banned or limited its use in various consumer products. Recent studies indicate that it may also function as a neurotoxin and contribute to asthma, among a variety of other potential negative health conditions. The EPA recently produced a draft inhalation toxicological review of formaldehyde that exhaustively detailed studies performed on the chemical. The study found that “[f]ormaldehyde is a carcinogenic to humans by the inhalation route of exposure.”


Id. at 6-45 to –46.
documented additional concerns regarding “sensory irritation of the eyes, nose, and throat,” “upper respiratory tract pathology,” “pulmonary function,” “asthma and atopy,” “neurologic and behavioral toxicity,” “reproductive and developmental toxicity,” and “immunological toxicity.”

2. Phthalates

The term phthalates refers to a group of chemicals used in a wide array of consumer products, including household chemicals such as cosmetics, insecticides, and cleaning products. Studies indicate that phthalates may act as endocrine disruptors and may affect the human reproductive system, particularly in infants. Phthalates may also affect the thyroid and may cause cancer, birth and developmental
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defects, obesity and insulin resistance, and shorter pregnancies, among other possibilities. Toxicity can vary, however, depending on the specific phthalate ester included in the product.

3. Triclosan

Triclosan appears as an antibacterial and antifungal agent in a wide variety of personal care and cleaning products. Studies have

315. See, e.g., Christina M. Carruthers & Paul M. D. Foster, Critical Window of Male Reproductive Tract Development in Rats Following Gestational Exposure to Di-n-butyl Phthalate, 74 BIRTH DEFECTS RES. 277 (2005); G. Lottrup et al., Possible Impact of Phthalates on Infant Reproductive Health, 29 INT’L J. ANDROLOGY 172 (2006); S.H. Swan et al., Prenatal Phthalate Exposure and Reduced Masculine Play in Boys, 33 INT’L J. ANDROLOGY 259 (2010); Soo-Charl Cho et al., Relationship between Environmental Phthalate Exposure and the Intelligence of School-Age Children, 118 ENVTL. HEALTH PERSP. 1027, 1030 (2010); Stephanie M. Engel, et al., Prenatal Phthalate Exposure Is Associated with Childhood Behavior and Executive Functioning, 118 ENVTL. HEALTH PERSP. 565 (2010); Katharina M. Main et al., supra note 312; Mary S. Wolff et al., Investigation of Relationships Between Urinary Biomarkers of Phytoestrogens, Phthalates, and Phenols and Pubertal Stages in Girls, 118 ENVTL. HEALTH PERSP. 1039 (2010). Due to concerns regarding the effects of phthalates on children, some countries and American states, including California, have banned the use of phthalates in children’s products. CAL. HEALTH & SAFETY CODE, § 108957 (West Supp. 2011); James Bothwell, Toy Story: Timeout for Phthalates, 39 MCGEORGE L. REV. 551, 552 (2008).


317. Giuseppe Latini et al., In Utero Exposure to Di-(2-ethylhexyl)phthalate and Duration of Human Pregnancy, 111 ENVTL. HEALTH PERSP. 1783, 1784 (2003).


319. Id.

indicated that triclosan may impact thyroid hormone production\textsuperscript{321} and have estrogenic and androgenic effects on human breast cancer cells,\textsuperscript{322} among other possible effects.\textsuperscript{323} Studies also indicate that the ubiquitous use of triclosan may contribute to antimicrobial and antibiotic resistance.\textsuperscript{324}

4. Perfluorinated Compounds (PFCs)

Perfluorinated compounds comprise a group of chemicals, including perfluorooctanoic acid (PFOA), the main component of polytetrafluoroethylene (PTFE) (the principal ingredient in Teflon), that appear in a wide range of household chemical products.\textsuperscript{325} Studies have connected PFCs with cancer,\textsuperscript{326} low birth weight,\textsuperscript{327} chemical-profiles/summary.tcl?edf_substance_id=3380-32d4-2d5#use_profile (last visited Sept. 20, 2011).

\textsuperscript{321}. See, e.g., Kevin M. Crofton et al., \textit{Short-term In Vivo Exposure to the Water Contaminant Triclosan: Evidence for Disruption of Thyroxine}, 24 EnvTOL. TOXICOLOGY & PHARMACOLOGY 194, 196 (2007); Nik Veldhoen et al., \textit{The Bactericidal Agent Triclosan Modulates Thyroid Hormone-Associated Gene Expression and Disrupts Postembryonic Anuran Development}, 80 AQUATIC TOXICOLOGY 217, 224–25 (2006); Leah M. Zorilla et al., \textit{The Effects of Triclosan on Puberty and Thyroid Hormones in Male Wistar Rats}, 107 TOXICOLOGICAL SCI. 56 (2008).


\textsuperscript{325}. PFCs appear in household cleaners, shampoos, floor waxes, paints, carpet cleaners, stain removers, car waxes, cosmetics, and other products. NAT'L RISK MGMT. RESEARCH LAB., ENVTL. PROT. AGENCY, \textit{PERFLUOROCARBOXYLIC ACID CONTENT IN 116 ARTICLES OF COMMERCE} (2009); PFCs: Global Contaminants, ENVTL. WORKING GRP. (Apr. 3, 2003), available at http://www.ewg.org/reports/pfcworld; Skin Deep, supra note 301.

\textsuperscript{326}. See, e.g., Keerthi S. Guruge, \textit{Gene Expression Profiles in Rat Liver Treated with Perfluorooctanoic Acid (PFOA)}, 89 TOXICOLOGICAL SCI. 93, 100, 102 (2006). In January 2005, in a draft assessment, the EPA’s Office of Pollution Prevention and Toxics Risk Assessment Division declared PFOA to have some evidence of carcinogenicity, but did not determine that it was at levels sufficient to declare human carcinogenic potential. OFFICE OF POLLUTION PREVENTION & TOXICS RISK ASSESSMENT DIV., ENVTL. PROT. AGENCY, DRAFT PFOA RISK ASSESSMENT OF THE POTENTIAL HUMAN HEALTH EFFECTS ASSOCIATED WITH
EXPOSURE TO PERFLUOROOCTANOIC ACID AND ITS SALTS 84, available at http://www.epa.gov/oppt/pfoa/pubs/pfoarisk.pdf. The EPA’s Science Advisory Board reviewed those results, and concluded “that the weight-of-evidence conclusion for the potential of PFOA to cause cancer in humans was more aligned and consistent with the hazard descriptor of ‘likely to be carcinogenic’ as described in the Agency’s cancer guidelines (i.e., 2003 EPA Guidelines for Carcinogen Risk Assessment).” SCIENCE ADVISORY BOARD, ENVTL. PROT. AGENCY, SAB REVIEW OF EPA’S DRAFT RISK ASSESSMENT OF POTENTIAL HUMAN HEALTH EFFECTS ASSOCIATED WITH PFOA AND ITS SALTS 2, available at http://www.epa.gov/sab/pdf/sab_06_006.pdf. The EPA has not yet reached a final determination.

327. See, e.g., Camilla Schou Andersen et al., Prenatal Exposures to Perfluorinated Chemicals and Anthropometric Measures in Infancy, 172 AM. J. EPIDEMIOLOGY 1230, 1232 (2010); Benjamin J. Apelberg et al., Cord Serum Concentrations of Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoate (PFOA) in Relation to Weight and Size at Birth, 115 ENVTL. HEALTH PERSP. 1670, 1674 (2007); Chunyuan Fei et al., Perfluorinated Chemicals and Fetal Growth: A Study within the Danish National Birth Cohort, 115 ENVTL. HEALTH PERSP. 1677, 1679 (2007); Noriaki Washino et al., Correlations Between Prenatal Exposure to Perfluorinated Chemicals and Reduced Fetal Growth, 117 ENVTL. HEALTH PERSP. 660 (2009).

328. See, e.g., David Melzer et al., Association Between Serum Perfluorooctanoic Acid (PFOA) and Thyroid Disease in the U.S. National Health and Nutrition Examination Survey, 118 ENVTL. HEALTH PERSP. 686, 690 (2010).


The EPA has developed an action plan to deal with the risks posed by PFCs. LONG-CHAIN thyroid disease, among other concerns. Public health concerns and EPA investigations have led to a reduction in the use of some of these chemicals.
5. Benzene

Benzene functions as a solvent in a wide variety of chemical products. Due to its toxicity, benzene is usually not included as an ingredient in cosmetics and household products; however, research by consumer groups has found it as an impurity in a variety of such products. Benzene is known to the World Health Organization, the U.S. Department of Health and Human Services, the EPA, and the state of California to cause cancer, and is known to cause developmental toxicity in California. Benzene also functions as a neurotoxin and can cause anemia.


333. Skin Deep, supra note 301.


335. STATE OF CALIFORNIA ENVTL. PROTECTION AGENCY, OFFICE OF ENVTL. HEALTH HAZARD ASSESSMENT, supra note 334; see also A.F. Hassein et al., A Study of Male Reproductive Toxicity in Workers Occupationally Exposed to Benzene, 5 EUR. UROLOGY SUPPLEMENTS 802 (2006) (studying the effect of Benzene exposure in Egypt).

336. AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, supra note 332; ENVTL. PROT. AGENCY, supra note 334.

337. AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, supra note 332; ENVTL. PROT. AGENCY, supra note 334.
6. Toluene

Toluene, a chemical frequently employed as a theoretically less toxic alternative to benzene, appears in numerous cosmetics and other household products. Toluene is known to the state of California to cause developmental toxicity, and many studies have investigated its function as a neurotoxicant, among other effects. According to the CDC, Toluene is also “the most commonly abused hydrocarbon solvent,” and abuse of it has been linked to fetal solvent syndrome. Compared to other potentially harmful chemicals, such as phthalates and synthetic musks, toluene has been relatively well studied. In 2005 the EPA reviewed a wide range of studies and found extensive evidence of a range of neurological

340. STATE OF CALIFORNIA ENVTL. PROTECTION AGENCY, OFFICE OF ENVTL. HEALTH HAZARD ASSESSMENT, supra note 334; see also Scott E. Bowen & John H. Hannigan, Developmental Toxicity of Prenatal Exposure to Toluene, 8 AM. ASS’N PHARMACEUTICAL SCIENTISTS J. 419 (2006).
343. AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, supra note 342, at 1.
344. Fetal solvent syndrome is a condition “in which women who abuse solvents during pregnancy are prone to bearing infants with congenital defects such as developmental delays, microcephaly, and cognitive deficits.” Win-Shwe & Fujimaki, supra note 341, at 96; see also Georgianne L. Arnold et al., Toluene Embryopathy: Clinical Delineation and Developmental Follow-Up, 93 PEDIATRICS 216 (1994); Bowen & Hannigan, supra note 340.
345. ENVTL. PROTECTION AGENCY, supra note 341.
effects and some conflicting evidence regarding immunotoxicity, but insufficient evidence to assess its carcinogenic potential.

7. Synthetic Musk

Synthetic musks, a group of chemicals used as fragrances, appear in a wide variety of cosmetics and cleaning products. Synthetic musks may cause hormone disruption and increased proliferation of cancer cells, among other possible effects. Studies have also indicated that synthetic musks may weaken the body’s resistance to other toxic chemicals, including carcinogens. Toxicity can vary, however, depending on the specific musk included in the product.
This list provides just a sample of the many ingredients in household chemical products that pose concerns for human health. Some studies also indicate negative health effects from the use of household cleaning products without necessarily referring to specific ingredients; for example, studies have correlated frequent use of household chemical products with respiratory system damage and asthma.\footnote{356} Many other component chemicals present significant health issues, but most remain officially unevaluated.\footnote{357} Although efforts have been made to decrease the use of some ingredients, such as benzene and formaldehyde, they may also appear as impurities in products even without deliberate inclusion as ingredients.\footnote{358} The effects of many of the chemicals in small doses over extended periods of time, as would occur in a home environment, as opposed to high doses for shorter periods, also remains uncertain for many ingredients.\footnote{359} The constant use of these chemicals in factories,
salons, and other occupational settings can expose workers in those settings to far greater doses than typical members of the population might receive. Whatever the implications of this scientific research, however, studies have established that humans, including infants, pregnant mothers, and other particularly vulnerable groups, are exposed to a wide range of these chemicals and carry them in their bodies. While some of the data concerning the health effects of

360. See, e.g., Rosenman et al., supra note 356; NAT‘L HEALTHY NAIL SALON ALLIANCE, supra note 300; GORMAN & O’CONNOR, supra note 300.
these chemicals remains preliminary or controversial, the lack of
testing received by household chemical products and ingredients does
not allow for firmer statements. 363

B. Environmental Concerns

The release of chemicals found in household chemical products
can damage the natural environment as well as human health. 364 The
chemicals can poison plants and animals, disrupt natural ecosystems,
and otherwise negatively impact the environment. 365 The release of
the chemicals into aquatic environments through waste water presents
particular concerns. 366 In addition, these chemicals may have
secondary effects on human health by leaching into sources of
drinking water, through consumption of plants and animals that have
absorbed the chemicals, through air pollution, and through other
means of human exposure. 367

Just as household chemicals may harm human health, they may
also harm the health of plant and animal species. Like The Jungle did
for public awareness of problems in America’s food production,
Rachel Carson’s Silent Spring raised early public awareness of the
impact of human chemical use on the natural environment. 368 Since
Carson’s time, considerable research has been performed on the
effects of the release of household chemicals into the environment,

363. Rawlins, supra note 17, at 11–16.
364. FOUND. FOR WATER RESEARCH, HOUSEHOLD CHEMICAL PRODUCTS AND THE WATER
SCHREDER & HEATHER TRIM, WASHINGTON TOXICS COAL., PUGET SOUND DOWN THE DRAIN:
HOW EVERYDAY PRODUCTS ARE POLLUTING PUGET SOUND 4–7 (2009), available at http://
365. FOUND. FOR WATER RESEARCH, supra note 364, at 5; SCHREDER & TRIM, supra note
364.
366. FOUND. FOR WATER RESEARCH, supra note 364, at 5; SCHREDER & TRIM, supra note
364, at 12–15.
367. CENTERS FOR DISEASE CONTROL & PREVENTION, supra note 173, at 1.
368. RACHEL CARSON, SILENT SPRING (The Riverside Press 1962); MARK H. LYTLE, THE
GENTLE SUBVERSIVE: RACHEL CARSON, SILENT SPRING, AND THE RISE OF THE
ENVIRONMENTAL MOVEMENT 133–230 (2007). Carson’s book revealed the harm, particularly
to birds, that is caused when dichlorodiphenyltrichloroethane (DDT), a common pesticide, is
released into the environment. Id. Silent Spring proved to be one of the inspirations for the early
environmental movement. Id.; JOSEPH V. RODRICKS, CALCULATED RISKS: THE TOXICITY AND
HUMAN HEALTH RISKS OF CHEMICALS IN OUR ENVIRONMENT 59 (2d ed. 2007).
and the concerns she expressed have not disappeared. Extensive research continues to be performed to determine how the extremely complex interactions between these chemicals and the environment may disrupt natural processes.

Many of the same chemicals that present human health concerns also present environmental concerns, and chemicals that may cause harm to animal species may also harm human health. For example, numerous studies reveal the widespread presence of PFCs in the environment and link them to damage to aquatic organisms and habitats.

Other studies have reached similar results concerning the ubiquity and possible environmental harms of synthetic musks.


370. RODRICKS, supra note 368, at 318–19.


372. See, e.g., Lau et al., supra note 330; Betts, supra note 330; Kurunthachalam Kannan et al., Association between Perfluorinated Compounds and Pathological Conditions in Southern Sea Otters, 40 ENVTL. SCI. TECH. 4943 (2006); Kei Nakayama et al., Potential Effects of Perfluorinated Compounds in Common Cormorants from Lake Biwa, Japan: An Implication from the Hepatic Gene Expression Profiles by Microarray, 27 ENVTL. TOXICOLOGY & CHEMISTRY 2378 (2008); Xiongjie Shi et al., Developmental Toxicity and Alteration of Gene Expression in Zebrafish Embryos Exposed to PFOS, 230 TOXICOLOGY & APPLIED PHARMACOLOGY 23 (2008); ORG. FOR ECON. CO-OPERATION & DEV., supra note 330, at 55–75.

373. See, e.g., Aaron M. Peck & Keri C. Hornbuckle, Synthetic Musk Fragrances in Urban and Rural Air of Iowa and the Great Lakes, 40 ATMOSPHERIC ENV’T 6101 (2006); R. Gutermann et al., Synthetic Musks in the Environment Part 1: Species-Dependent Bioaccumulation of Polycyclic and Nitro Musk Fragrances in Freshwater Fish and Mussels, 42 ARCHIVES ENVTL. CONTAMINATION & TOXICOLOGY 437 (2001); Haruhiko Nakata, Occurrence of Synthetic Musk Fragrances in Marine Mammals and Sharks from Japanese Coastal Waters, 39 ENVTL. SCI. & TECH. 3430 (2005); Kurunthachalam Kannan et al., Polycyclic Musk Compounds in Higher Trophic Level Aquatic Organisms and Humans from the United States, 61 CHEMOSPHERE 693 (2005); Heinz Rudel et al., Retrospective Monitoring of Synthetic Musk Compounds in Aquatic Biota from German Rivers and Coastal Areas, 18 J. ENVTL. MONITORING 812 (2006); Aaron M. Peck et al., Synthetic Musk Fragrances in Lake Erie and Lake Ontario Sediment Cores, 40 ENVTL. SCI. TECH. 5629 (2006).
Some studies have also found phthalates in significant quantities in aquatic environments—quantities that may be toxic to a wide range of organisms. In addition, some studies have associated the ubiquitous use of triclosan with possible environmental harm, particularly through wastewater pollution. These and many other

374. See, e.g., Luckenbach et al., supra note 354; Daniel R. Dietrich & Bettina C. Hitzfeld, Bioaccumulation and Ecotoxicity of Synthetic Musk in the Aquatic Environment 3 THE CHEMISTRY 233 (2004); Leah Wollenberger et al., Inhibition of Larval Development of the Marine Copepod Aeronautilus Tosa by Four Synthetic Musk Substances, 305 SCI. TOTAL ENV’T 53 (2003); Hubertus Brunn et al., Toxicology of Synthetic Musk Compounds in Man and Animals, HANDBOOK ENVTL. CHEMISTRY 259 (2004); Sabine Schnell et al., The Interference of Nitro- and Polycyclic Musk with Endogenous and Xenobiotic Metabolizing Enzymes in Carp: An In Vitro Study, 43 ENVTL. SCI. TECH. 9458 (2009); M.P. Gooding et al., Toxicity of Synthetic Musk to Early Life Stages of the Freshwater Mussel Lampisus Cardium, 51 ARCHIVES CONTAMINATION & TOXICOLOGY 549 (2006).


376. See, e.g., Hung-Hung Sung et al., Effects and Toxicity of Phthalate Esters to Hemocytes of Giant Freshwater Prawn, Macrobrachium Rosenbergii, 64 AQUATIC TOXICOLOGY 25 (2003); Ying Liu et al., Toxicity of Seven Phthalate Esters to Embryonic Development of the Abalone Haliotis diversicolor supertexa, 18 ECOTOXICOLOGY 293 (2009); Nivedita Ghorpade et al., Toxicity Study of Diethyl Phthalate on Freshwater Fish Cirrhina miraga, 53 ECOTOXICOLOGY & ENVTL. SAFETY 255 (2002).


378. See, e.g., Marinella Farrà et al., Assessment of the Acute Toxicity of Triclosan and Methyl Triclosan in Wastewater Based on the Bioluminescence Inhibition of Vibrio Fischeri, 390 ANALYTICAL & BIOANALYTICAL CHEMISTRY 1999 (2008); Norihisa Tatarazako et al., Effects of Triclosan on Various Aquatic Organisms, 11 ENVTL. SCI. 133 (2004); Rhaul Oliveira et al., Effects of Triclosan on Zebrafish Early-Life Stages and Adults, 16 ENVTL. SCI. & POLLUTION RES. 679 (2009); David R. Orvos et al., Aquatic Toxicity of Triclosan, 21 ENVTL. TOXICOLOGY & CHEMISTRY 1338 (2002); Hiroshi Ishibashi et al., Effects of Triclosan on the Early Life Stages and Reproduction of Medaka Oryzias latipes and Induction of Hepatic Vitellogenin, 67 AQUATIC TOXICOLOGY 167 (2004); Claudia Ciniglia et al., Application of Methods for Assessing the Geno- and Cytotoxicity of Triclosan to C. ehrenbergii, 122 J. HAZARDOUS MATERIALS 227 (2005); Samsoe-Petersen et al., supra note 377; Veldhoen et al., supra note 321.
household chemical ingredients pose substantial risks of environmental harm, although the degree and extent of these risks are, in many cases, ambiguous. As with the health effects, many of the environmental consequences remain unclear and the supporting data preliminary. Although the evidence for some health and environmental effects is clearer than for others, the enduring theme is uncertainty, with definitive data largely absent.\textsuperscript{379} In addition to the health and environmental effects directly caused by the chemicals, much uncertainty exists regarding the potential consequences of the combinations that the chemicals may form with each other in the home and the broader environment.\textsuperscript{380} Some chemicals may break down in the environment and the human body, while others tend to accumulate over time.\textsuperscript{381} Given this uncertainty and the nature of the scientific process, regulators cannot achieve a zero-risk standard, and they must balance public and environmental safety concerns against economic costs, at least to some extent.\textsuperscript{382} While this uncertainty may not permit outright bans based on the slightest uncertainty,\textsuperscript{383} a wide range of regulatory discretion remains available, and labeling serves as a solution where uncertainty does not allow for a ban.\textsuperscript{384}


381. Synthetic musks, for example, have been shown to bioaccumulate in human and animal tissues and in the broader environment. See, e.g., Dietrich & Hitzfeld, \textit{supra} note 374; Gatermann et al., \textit{supra} note 373; Kannan et al., \textit{supra} note 373; Reiner et al., \textit{supra} note 373; Hutter et al., \textit{supra} note 362.

382. RODRICKS, \textit{supra} note 368, at 284–90.

383. Sharpe, \textit{supra} note 379, at 447; RODRICKS, \textit{supra} note 368, at 284–90 (“It should be clear by now that risk assessors do not know how to draw a sharp line between ‘safe’ and ‘unsafe’ exposures to any chemical. The very notion of ‘safety’ is scientifically wrongheaded, if by it is meant the absolute absence of risk.”). Of course, regulators should set any safety standards at a level that, within reason and within the limits of scientific understanding, minimizes risk or chooses the most ecologically sound alternative, and this level may still result in the ban of many chemicals. See infra note 482 and accompanying text; Rawlins, \textit{supra} note 17, at 46–50.

384. For an analysis of environmental chemicals from a risk assessment and management perspective, and discussing the difficulties presented by inadequate information and the
V. ANALYSIS

Researchers have generally considered the current nutritional labeling scheme administered by the FDA a success. Numerous complex nature of scientific research in this area, see RODRICKS, supra note 368. Some environmentalists have argued against the use of risk assessment, at least as it is currently formulated, in environmental decision-making. See, e.g., MARY O’BRIEN, MAKING BETTER ENVIRONMENTAL DECISIONS: AN ALTERNATIVE TO RISK ASSESSMENT (2000) (promoting “alternatives assessment” as a more ecologically sound replacement for risk assessment); Robert R. Kuehn, The Environmental Justice Implications of Quantitative Risk Assessment, 1996 U. ILL. L. REV. 103; Ellen K. Silbergeld, Risk Assessment: The Perspective and Experience of U.S. Environmentalists, 101 ENVTL. HEALTH PERSP. 100 (1993). Whatever the method of regulation used (or decided-upon), “society cannot feasibly eliminate all carcinogenic risks nor enjoin use of all toxic substances. Society must therefore develop some rational method for deciding which risks are unacceptable and for allocating scarce regulatory resources.” Howard Latin, Good Science, Bad Regulation, and Toxic Risk Assessment, 5 YALE J. ON REG. 89, 147 (1988). However, risk assessment need not be confined to purely economic considerations. See id. at 148 (arguing that because “predictions of toxic effects generally cannot be grounded on reliable scientific judgments, social policy criteria must play an influential role in the choice among competing risk estimates”).

studies have found that consumers read nutrition labels, that the
labels influence their purchasing decisions, and that those decisions
ultimately improve the health of those consumers. The labeling
scheme has positively influenced patterns of nutrient intake; fat,
cholesterol, and sodium consumption; and other nutritional factors.
Since the development of the modern food label following the
passage of the NLEA, the label’s consistent and ubiquitous presence
on food products has broadened consumers’ awareness of nutritional
factors affecting their health, encouraged discussion of nutrition
issues in public discourse, and led to a more active role for food
manufacturers as nutrition information providers. The success of

(finding that frequent use of labels for information regarding sugar content was associated with
lower added sugar consumption).

386. However, the success of the nutrition labeling program does not mean that American
food consumption is flawless. Indeed, by some measures, the nutritional quality of the average
American diet has deteriorated in recent decades. And as a result, obesity rates have increased
noticeably since 1985. U.S. Obesity Trends, CTR. FOR DISEASE CONTROL & PREVENTION,
the prevalence of certain ingredients like high fructose corn syrup have contributed to the
development of chronic diseases such as diabetes. See, e.g., Lee S. Gross et al., Increased
Consumption of Refined Carbohydrates and the Epidemic of Type 2 Diabetes in the United
American eating patterns have pointed to increased consumption of processed foods and the
lack of unrefined foods such as fresh fruits and vegetables typical of the American diet. See,
e.g., MICHAEL POLLAN, THE OMNIVORE’S DILEMMA: A NATURAL HISTORY OF FOUR MEALS
(2006). However, these criticisms do not provide an argument against nutrition and ingredient
labeling. As the previously cited studies reveal, the labels effectively improve the food
consumption patterns of those who use them. See supra note 385. And food labeling is just one
weapon in the arsenal available to improve American eating habits. Indeed, consumers could
not act on information concerning, say, the possible negative health effects of high fructose
corn syrup consumption without knowing which foods contained the syrup. Nutrition labeling
provides a source of information that can, and does, educate consumers and provide a starting
point for discussion of nutrition issues in society. See supra note 385. Chemical labeling would
serve the same purposes.

387. See supra note 385. The nutrition labeling scheme has also resulted in changes in the
products released into the marketplace by food producers. Bruce A. Silverglade, The Nutrition
Labeling and Education Act—Progress to Date and Challenges for the Future, 15 J. PUB.
POL’Y & MARKETING 148, 148 (1996). Manufacturers have replaced foods high in ingredients
such as fat and sugar with healthier ones. Nicole Fradette et al., The Impact of the Nutrition
Labeling and Education Act of 1990 on the Food Industry, 47 ADMIN. L. REV. 605, 616–17
(1995). This means that “consumers who may not even read the nutrition label will still benefit
as manufacturers reformulate products.” Silverglade, supra.

388. See supra note 385.

389. Fradette et al., supra note 387, at 618.
the labeling laws has resulted in calls for their expansion to cover foods served in restaurants and other locations, labeling on supermarket shelves and the front of packages, and for the inclusion of even broader categories of information, such as whether the products contain genetically modified ingredients.

Despite the broadly positive reception the nutritional labeling scheme has received, some commentators have pointed out defects in its design. Some note the scheme’s failure to make labeling accessible to specific groups such as children, the elderly, and the poor. Others criticize the FDA’s willingness to permit food...
manufacturers to make various health claims and to apply their own labeling designs. Still others push for labeling of genetically modified foods and other categories of products. Although the FDA and Congress must balance these concerns against the need to maintain a clear and uniform labeling system, and must ensure that the burden of compliance on food product manufacturers does not overwhelm them, future regulations may address these complaints.

Both the successes and failures of the modern nutritional labeling scheme have implications for the design of a future household chemical labeling scheme. While the first and perhaps most basic lesson may be that an industry-wide ingredient labeling scheme can successfully achieve the information and behavior modification goals set for it, other lessons deserve discussion. This Note divides these lessons into issues of breadth—ensuring that future labeling schemes address enough issues and identify enough components to properly inform consumers; accessibility—ensuring that as many consumers as possible benefit from labeling; uniformity—preventing confusion and improving regulatory efficiency by ensuring consistent labeling; clarity—ensuring that consumers find labeling clear and easy to understand; education—ensuring that consumers understand the relationship between the chemical ingredients and their health; and testing, standards, and enforcement—ensuring that the representations on the labels match the contents of the packages and that all components meet the appropriate safety standards. The essence of the proposed labeling program, however, is consumer choice—the principle that consumers should have the power to

399. See supra note 125 and associated text.
400. See supra note 385 and associated text.
401. Consumer choice theory is a theory based in microeconomics. See, e.g., GORDON FOXALL, UNDERSTANDING CONSUMER CHOICE (2005); JAMES R. BETTMAN, INFORMATION PROCESSING THEORY OF CONSUMER CHOICE (1979). This economic theory, and its broader philosophical underpinnings, are largely beyond the scope of this Note. For an application of consumer choice theory to nutritional labeling in the context of fast food products, see McCann, supra note 124.
decide the chemicals to which they are willing to expose themselves and their environment.

A. Breadth

The failure to disclose sufficient information concerning household chemical products so as to permit consumers to make informed purchasing decisions represents the most basic and damaging flaw in the current labeling system. The FHSA, and the regulations issued pursuant to it, do require labeling of a household chemical ingredient if it meets the definition of a “hazardous substance.” However, the regulations do not permit issuance of a warning unless “sufficient” or “limited” evidence of its toxic effect on humans or animals, or “limited” evidence of its toxic effect on humans, exists. But this requirement ignores the reality of scientific testing. Unless the scientific community already considers a chemical almost indisputably safe, it will not perform tests using that substance on human subjects. Without human tests, meeting the


404. The definition of “sufficient” evidence from animal studies varies somewhat depending on whether the risk involves carcinogenity, neurotoxicity, or other hazards. However, it generally requires that experiments “elicit a statistically significant (p < 0.05) treatment-related increase in multiple endpoints in a single species/strain, or in the incidence of a single endpoint at multiple dose levels or with multiple routes of administration in a single species/strain, or increase in the incidence of a single endpoint in multiple species/strains/experiments.” 16 C.F.R. § 1500.135(c)(1)(iii)(B) (2009). For human studies, “sufficient” evidence generally requires that “[n]o identified bias that can account for the observed association has been found,” that “[a]ll possible confounding factors which could account for the observed association can be ruled out with reasonable confidence,” and that “[b]ased on statistical analysis, the association has been shown unlikely to be due to chance.” Id. § 1500.135(c)(1)(i).

405. The definition of “limited” evidence from human studies also varies somewhat depending on whether the risk involves carcinogenity, neurotoxicity, or other hazards, but generally it requires that a “causal interpretation is credible, but chance, bias, or other confounding factors could not be ruled out with reasonable confidence.” Id. § 1500.135(a)(2)(i). Except for substances presenting a risk of reproductive toxicity, “limited” evidence from animal studies results in a determination that the substance is “not considered ‘toxic.’” Id. § 1500.135(a)(3).

406. 16 C.F.R. § 1500.135(a)-(c) (2009).

407. Indeed, the “Common Rule” employed by the federal government to approve human subject research generally requires both informed consent and that the risks to the subjects are
standard requires very convincing evidence from animal tests, a
difficult standard to meet.\textsuperscript{409} Even if the CPSC acquired the evidence,
it would still have to prove that the substance meets the FHSA’s
definition of “toxic” and that humans have the potential to be
exposed to it.\textsuperscript{410} Given the extensive scientific uncertainty, without
full labeling of all ingredients even adequate labeling of toxic
chemicals according to CPSC definitions would deprive consumers
of the opportunity and ability to make informed choices regarding the
chemicals they buy.\textsuperscript{411} Even when evidence of toxicity seems almost
certain, the limitations on the CPSC’s powers under the CPSA, the
FHSA, and its own regulations have resulted in a failure to act.\textsuperscript{412} The
FDA, under the FD&C Act, has greater power to order cosmetic
labeling, and has exercised that power to require some limited
ingredient labeling.\textsuperscript{413} However, exceptions such as those permitting
manufacturers the ability to claim trade secret protection and the
power to label fragrances with just the term “fragrance,” rather than
with the name of the chemical, has significantly restricted the scope
of ingredient labeling.\textsuperscript{414} In addition, the FDA’s failure to mandate
testing prior to sale has rendered the cosmetics labeling requirements

\begin{quote}
“reasonable in relation to anticipated benefits, if any, to [the] subjects, and [to] the importance of the knowledge that may reasonably be expected to result.” 45 C.F.R. § 46.111 (2009). The benefits would not include benefits that the subject “would receive even if not participating in the research,” or “possible long-range effects of applying knowledge gained in the research.” \textit{Id}. Scientists would struggle to obtain human subjects or the permission necessary to test potentially risky chemical ingredients on them under those guidelines.
\end{quote}

\textsuperscript{408}. While studies of populations that are exposed to a substance can provide some evidence for a substance’s toxicity in humans, ruling out “[a]ll possible confounding factors,” as the regulation requires, presents a difficult standard. 16 C.F.R. § 1500.135(c)(1)(C) (2009).

\textsuperscript{409}. \textit{See} 16 C.F.R. § 1500.135(c)(1)(iii)(B) (2009).

\textsuperscript{410}. 15 U.S.C. § 1261(g) (2006); 16 C.F.R. § 1500.135(d).

\textsuperscript{411}. \textit{See supra} notes 379–84 and accompanying text; Sharpe, \textit{supra} note 379, at 447; RODRICKS, \textit{supra} note 368, at 284–90.

\textsuperscript{412}. For example, the CPSC had evidence of formaldehyde’s hazard as a carcinogen at least as early as 1981, while the EPA had evidence at least as early as 1987. \textit{See NAT’L INST. FOR OCCUPATIONAL SAFETY & HEALTH, supra note} 302; \textit{OFFICE OF AIR AND RADIATION, ENVT'L PROTECTION AGENCY, supra note} 302. Despite mounting evidence to the point that the World Health Organization branded it a “known carcinogen,” the CPSC has failed to ensure that products that emit formaldehyde when used bear appropriate labeling. \textit{INT’L AGENCY FOR RES. ON CANCER, supra note} 303; \textit{ENVTL. WORKING GRP., GREENER SCHOOL CLEANING SUPPLIES, supra note} 358.

\textsuperscript{413}. \textit{See FOOD AND DRUG ADMIN., supra} note 174.

\textsuperscript{414}. Gervin, \textit{supra} note 177, at 327–29. The SCA of 2011 would rescind these exemptions.

H.R. 2359 § 613(a); H.R. 2359 § 611(4)(A); H.R. 2359 § 613(f).
ineffectual since the accuracy of the labels and the health concerns of the chemicals on them remain uncertain. The evidence that household chemical products may release potentially hazardous chemicals via impurities rather than from intentionally added ingredients calls for the labeling of products that could release those impurities. Nor do the current labeling regulations account for chemicals that consumers may wish to avoid because of their harmful effects on the natural environment. Thus, adequate household chemical labeling requires disclosure of all components, not just those currently considered toxic, and the labeling of all household chemical products, not just those already recognized as hazardous.

The current state of household chemical labeling is grossly inadequate to meet the informational needs of consumers. Insufficient statutes, bureaucratic failures, and an industry unwilling or unable to adequately police itself have left consumers exposed to a vast range of actual and potential toxins. Similarly, when nutritional labeling commenced in 1906 it required little more than that any statements made on the packaging be accurate, and insufficient and misleading labeling abounded. However, beginning in 1913 with the Gould Amendment and reaching full ingredient and nutrient disclosure with the passage of the NLEA, nutritional labeling has gradually reached the present state of mandatory labeling of all product components. Congress can learn from this experience. New regulations can dispense with this slow and stumbling approach by requiring labeling of all ingredients along with appropriate cautionary statements. Such labeling would permit consumers to understand, at the time of purchase, what risks they assume by using the products they buy.

416. ENVT. WORKING GRP., GREENER SCHOOL CLEANING SUPPLIES, supra note 358.
417. See supra notes 364–78 and accompanying text.
418. Wilson & Schwarzman, supra note 19, at 1204–5; Rawlins, supra note 17, at 1–35.
422. Dunagan et al., supra note 402, at 441–42.
Admittedly, the issues presented by potential household chemical labeling do not completely track those involved in nutritional labeling. Manufacturers of chemical products do have legitimate concerns regarding the protection of their intellectual property in the formulation of their products. However, even if the household chemical manufacturers’ need to protect trade secrets was greater than the food manufacturers’ need to protect their secrets (an assertion far from proven), manufacturers’ rights and any potential value to the public from those trade secrets must be balanced against the harm to consumers from the hidden risks that they may be assuming when they use those household chemical products. Indeed, far from suppressing innovation in the design of new food products, full disclosure in food labeling has been credited with encouraging manufacturers to create healthier products, a clear benefit to consumers. Even if the new regulations impose significant costs on the chemical industry, those costs must be weighed against the monetary and health benefits to society of

423. Wayne, supra note 275; see also Gervin, supra note 177, at 334.
424. Experience with nutrition labeling suggests that the disclosure of ingredients would not necessarily stifle the development of new products, which is one of the main traditional arguments for maintenance of trade secrets. See, e.g., CHRISTOPHER M. KALANJE, WORLD INTELL. PROP. ORG., ROLE OF INTELLECTUAL PROPERTY IN INNOVATION AND NEW PRODUCT DEVELOPMENT (2005), available at http://www.wipo.int/export/sites/www/sme/en/documents/pdf/ip_innovation_development.pdf. Since the passage of the NLEA, the food industry has seen a dramatic increase in functional foods, products made from soy, olestra, and other cutting edge ingredients, and other new food products that have required extensive research and development. The requirement that the ingredients appear on food labels does not appear to have halted innovation in the food industry, and in fact it has refocused some of that innovation into the development of healthier products. See supra note 387.
425. See Gervin, supra note 177, at 338–40 (arguing that dispensing with trade secret protection for cosmetics ingredients would not significantly breach the principles of trade secret law).
426. See supra Part IV.
427. See supra note 387. Admittedly, this has not been without its costs; an FDA estimate prior to the implementation of the NLEA placed its cost at $1.3 billion to food manufacturers. Regulatory Impact Analysis of the Proposed Rules to Amend the Food Labeling Regulations, 56 Fed. Reg. 60,856, 60,857 (Nov. 27, 1991). However, the same document estimated that the NLEA would save “80,900 life-years,” and achieve benefits of up to $21 billion based on those life-years saved. Id. (“The monetary value of the benefits [number of life-years saved] of this regulation is estimated to be $3.6 billion [discounted at 5 percent over a 20-year period]. Valuing benefits based on the number of lives saved would raise this value to $21 billion [discounted at 5 percent over a 20-year period”]). However, these comparisons of the value of dollars to increased life spans are difficult to quantify or justify.
decreased rates of cancer, birth defects, and other health savings, as well as potential benefits to the natural environment. Such benefits are, of course, highly speculative and difficult to measure; however, the potential costs to industry cannot be considered in isolation (and are, of course, also speculative and uncertain). To placate some of the chemical industry’s fears, labeling could include just the names of the chemicals, whether their amount passes certain threshold values, and appropriate cautionary statements, rather than disclosure of the precise quantities or percentages, thus preventing the release of exact formulations.

B. Accessibility

Much discussion regarding the labeling of both food and chemical products centers around the need to inform children. But the modern food label, relying on percentages of daily values, serving sizes, and quantities of various nutrients, can confuse or mislead younger consumers. Similar risks exist with a potential chemical labeling scheme. Given the high rate of child poisonings in the United States, the obvious knowledge gaps between children and...
adults, and the potentially greater sensitivity of children to some chemicals, lawmakers must pay significant attention to this issue when drafting household chemical labeling legislation. Labeling on the front of packaging, potentially employing colors and symbols to convey the dangerous characteristics, could serve this goal. As part of a broader instructional campaign aimed at children and parents, the colors and symbols could serve as a valuable educational tool, something that some critics believe could improve awareness of proper nutrition in connection with food labeling.

While children represent one of the most important vulnerable groups that regulators must take into account, other groups also require consideration.

Studies indicate that while older consumers do consult nutrition labels when shopping, their usage rates and ability to interpret the information lag behind those of younger consumers. Studies also suggest that educational programs aimed


435. Some nongovernmental entities have already attempted to solve this problem. For example, the nationwide “Mr. Yuk” campaign administered by the Children’s Hospital of Pittsburgh distributes stickers featuring a green face sticking its tongue out that are intended for application on poisonous chemical products. Children’s Hospital of Pittsburgh, Mr. Yuk, http://www.chp.edu/CHP/mryuk (last visited Sept. 20, 2011). As part of a comprehensive educational campaign, such symbols printed on the labels of household chemical products could help prevent accidental poisonings or other harmful effects to children’s health.


437. While this Note discusses a selection of vulnerable groups, it should not be read as discounting the importance of other factors. For example, experience with food labeling has suggested that differences may exist in nutrition labeling interpretation along race and gender lines. See, e.g., Padmini Shankar et al., Dietary Intake and Health Behavior Among Black and White College Females, 33 FAM. & CONSUMER SCI. RES. J. 159, 159–71 (2004); Mario F. Teisl et al., Nutrition Labeling; Does the Message Reach the Consumer?, ME. AGRIC. & FOREST EXPERIMENT STATION PUB. NO. 2231 6 n.3 (1998). Regulators may need to consider such groups in developing labeling schemes as well, although the particular methods of addressing labeling to those groups may be harder to determine.

438. Macon, supra note 395, at 51; Byrd-Bredbenner, supra note 395, at 37–41.
Educational disadvantages may also have to be considered, as some studies have indicated may be the case with the Nutrition Facts Panel. These studies, as well as those addressing children’s use of labeling, imply that a successful chemical labeling regime needs to incorporate a broader educational program that includes messaging targeted to specific consumer groups.

The new labeling regulations should also address the needs of consumers who are particularly sensitive to chemicals, as the FALCPA does for people allergic to certain food ingredients. While many chemicals may present a concern to the general population, and a proper labeling scheme should require listing of all ingredients in household products, some chemicals present risks to specific populations. People with allergies or sensitivities to certain chemicals form an obvious group similar to that covered by the FALCPA. Infants and pregnant mothers present special cases, as

439. Macon, supra note 395, at 51; Byrd-Bredbenner, supra note 395, at 41–42.
444. A 1999 study found that 15.9% of people surveyed considered themselves to be “allergic or unusually sensitive to everyday chemicals,” while 6.3% reported that a doctor had informed them that they had “environmental illness or multiple chemical sensitivity.” Richard Kreuzer et al., Prevalence of People Reporting Sensitivities to Chemicals in a Population-based Survey, 150 AM. J. EPIDEMIOLOGY 1, 4 (1999). The FHSA, and the regulations issued pursuant to it, do address chemicals with a “[s]ignificant potential for causing hypersensitivity.”
many chemicals not ordinarily considered to require particular caution can cause negative health effects to expectant mothers, developing children, and fetuses. The new labeling regulations should provide for notice to vulnerable groups such as these, whether through slogans, logos, or warning messages, when a product contains a chemical posing a proven hazard to them, or, alternatively, when a product has been proven not to pose a risk.

C. Uniformity

One of the greatest strengths of the “Nutrition Facts” labeling scheme stems from its ubiquitous and uniform placement and format.

16 C.F.R. § 1500.3(c) (2009); 15 U.S.C. § 1261(k) (2006). However, while the ingredients themselves may have to be listed if they have been proven to meet the definition of a “strong sensitizer” under 15 U.S.C. § 1261(k) and may have to carry some “affirmative statement” of their hazard as a sensitizer, the current regulations contain the same flaws as previously discussed in that they fail to identify many problematic chemicals, particularly if evidence of their effects is uncertain. 15 U.S.C. § 1261(k), (p) (2006). Nor has the CPSC or the FDA established any firm definitions of commonly used labeling terms, such as “hypoallergenic,” “unscented,” “fragrance-free,” “allergy-tested,” “nonirritating,” “dermatologist-tested,” or “sensitivity-tested” that could assist consumers in purchasing products less likely to cause allergic reactions as well as prevent manufacturers from making misleading claims. JULIE GABRIEL, THE GREEN BEAUTY GUIDE: YOUR ESSENTIAL RESOURCE TO ORGANIC AND NATURAL SKIN CARE, HAIR CARE, MAKE-UP, AND FRAGRANCES 31 (2008); Pamela L. Scheiman, The Foul Side of Fragrance-Free Products: What Every Clinician Should Know about Managing Patients with Fragrance Allergy, 41 J. AM. ACAD. DERMATOLOGY 1020, 1020–24 (1999).

445. Numerous studies have associated exposure to various ingredients in household chemical products during pregnancy and child development with health problems and developmental defects in children. See, e.g., Theo Colburn, Neurodevelopment and Endocrine Disruption, 112 ENVT. HEALTH PERSPS. 944 (2004); Andersen et al., supra note 327; Apelberg et al., supra note 327; Arnold et al., supra note 344; Bornehag et al., supra note 318; Bowen & Hannigan, supra note 340; Carruthers & Foster, supra note 315; Cho et al., supra note 315; Fei et al., supra note 327; Fei et al., supra note 329; Lottrup et al., supra note 315; Main et al., supra note 315; Sherriff et al., supra note 356; Swan et al., supra note 312; Swan et al., supra note 315; Washino et al., supra note 327; Win-Shwe & Fujimaki, supra note 341, at 96; ENVTL. WORKING GROUP, supra note 361; HOULIHAN et al., supra note 361; SCHREIDER, supra note 361; Adibi et al., supra note 361; Kato et al., supra note 361; Reiner et al., supra note 361; Sathyarayana et al., supra note 361; Silva et al., supra note 361; Ye et al., supra note 361.

446. Regulations issued by the governing authority under the new labeling program could accomplish this goal in part through defining terms, such as “hypoallergenic,” that would indicate the safety of a product for use by a particular vulnerable group, as the FALCPA did for food allergens. See supra notes 117–21 and associated text.
on all food packaging. Unfortunately, the division of authority under the various chemical regulation laws may hamper progress toward similar uniformity for household chemical labeling. Without either extensive and complicated interagency cooperation, or a consolidation of authority under one agency, the kind of ubiquitously designed and placed labeling represented by the “Nutrition Facts” label may be harder to achieve. If each agency developed its own labeling scheme, the labeling for cosmetic products would likely differ in format, placement, and mandated information from the labeling for household cleaning products, which in turn would differ from the labeling for pesticides. This would require consumers to learn three separate labeling schemes, would create a greater likelihood of confusion, and would involve inefficient duplicative efforts. Ideally, authority for the labeling of all household chemical products, including cosmetics and pesticides, would be vested in a single agency. However, given institutional ossification


450. As currently written, the HPLA would amend the FHSA to mandate labeling for “household cleaning product[s] or similar product[s],” thus likely perpetuating the present
and possible disruption to the enforcement of other aspects of the laws containing the labeling provisions, consistent labeling of household chemicals across all product types would probably require extensive inter-agency cooperation.

Preemption of state labeling laws would also play a substantial role in the design of federal labeling regulations, both in ensuring consistent labeling regulations and in acquiring some industry support for regulation.\textsuperscript{457} The NLEA preemption provisions have ensured that the federally-required information presented under the NLEA has appeared without potentially confusing information required under state laws.\textsuperscript{452} This has displaced the previous patchwork of state regulation that both manufacturers and consumers sought to end.\textsuperscript{453} The CPSA and the FIFRA contain express preemption clauses;\textsuperscript{454} assuming, as the HPLA would,\textsuperscript{455} that division of agency responsibilities under that act, because neither the FHSA nor the phrase “household cleaning product[s]” covers cosmetics or pesticides. H.R. 3057 § 2; S. 1697 § 2.

\textsuperscript{451} See supra note 275. However, the preemption of state labeling laws would not necessarily require preemption of state testing, disclosure, and green chemistry efforts. See supra notes 261–99.

\textsuperscript{452} Id.; see also Scarbrough, supra note 87, at 47–48 (discussing the effect of NLEA preemption on promoting national food labeling uniformity). While state labeling schemes such as the one administered in California under Proposition 65 can have a role in informing consumers in the absence of federal regulation, the presence of state warnings alongside federal warnings could lead to confusion, a complaint common to nutritional labeling prior to the NLEA. Kessler et al., supra note 79, at 14; see also Scarbrough, supra note 87, at 47–48. Manufacturers selling chemical products nationwide would also have to either develop separate labels for each state, or design one labeling scheme that complied with the shifting demands of the laws of all fifty states, an understandably daunting task. See supra notes 261–99.

\textsuperscript{453} See supra note 275; see also Kessler et al., supra note 79, at 14; Scarbrough, supra note 87, at 47–48.


Whenever a consumer product safety standard under this chapter is in effect and applies to a risk of injury associated with a consumer product, no State or political subdivision of a State shall have any authority either to establish or to continue in effect any provision of a safety standard or regulation which prescribes any requirements as to the performance, composition, contents, design, finish, construction, packaging, or labeling of such product which are designed to deal with the same risk of injury associated with such consumer product, unless such requirements are identical to the requirements of the Federal standard.

\textsuperscript{455} 15 U.S.C. § 2075(a). The FIFRA clause similarly bars all state labeling that differs from the federal requirements, mandating that no state may “impose or continue in effect any
household chemical labeling authority would fall predominantly under the CPSC, conflicting state laws would not interfere with the federal scheme. However, in Wyeth v. Levine, the Supreme Court recently held that the FD&C Act does not bar tort claims based on state law. Therefore, either the new labeling regulations may have to transfer authority for labeling of cosmetics away from the FDA under the FD&C Act, or they may have to contain their own express preemption language covering all product types.

D. Clarity

The standardized format of the “Nutrition Facts” label and its prominent placement on food packaging has provided consumers with quick and easy access to the information presented. In keeping with the uniformity theme previously identified, the label appears in the same format and includes the same information on all food packages, and provides all important government-mandated health information in one location. The new household chemical product label should adopt a similar structure, listing all ingredients, cautionary statements, and other useful health information in one location on the product’s label. Regulators should pay careful attention to the label design in order to ensure that it provides the

requirements for labeling or packaging in addition to or different from those required” by the FIFRA. 7 U.S.C. § 136v(b).

455. H.R. 3057 § 2(c); S. 1697 § 2(c).
456. This would obviously also determine the effect of success under lawsuits such as that brought under the Conservation Law of New York. See supra note 289.
458. Derby, supra note 385, at 387; Christine Moorman, A Quasi-Experiment to Assess the Consumer and Informational Determinants of Nutrition Information Processing Activities: The Case of the Nutrition Labeling and Education Act, 15 J. PUB. POL’Y & MARKETING 28, 41–42 (1996). The Nutrition Facts label has become a “recognized and highly regarded icon for providing consumer information,” and is the inspiration for numerous other labels and designs. Taylor & Wilkening, supra note 91, at 441–42.
459. Food & Drug Admin., How to Understand and Use the Nutrition Facts Label, http://www.fda.gov/Food/LabelingNutrition/ConsumerInformation/ucm078889.htm (last visited Sept. 20, 2011). The Nutrition Facts label always appears on “that part of the label immediately contiguous and to the right of the principal display panel as observed by an individual facing the principal display panel;” but if that panel cannot accommodate the information, then the panel “immediately contiguous and to the right of this part of the label may be used.” 21 C.F.R. § 101.2(a) (2009).
same benefits as the “Nutrition Facts” label. Cosmetics, cleaning products, pesticides, and all other household chemicals should bear the same label in the same format, allowing consumers to easily find the information they seek.

Consistent and clear use of descriptors, measurement units, and similar data points also helps consumers interpret the “Nutrition Facts” label. For example, people may properly refer to vitamin C as L-ascorbic acid, 2-oxo-L-threo-hexono-1,4-lactone-2,3-enediol, and vitamin C, among other names. Only the name “vitamin C,” however, would likely resonate with consumers, and that name always appears on food product labels. Household chemical labels should similarly identify ingredients with names that consumers will recognize, particularly when labeling ingredients posing potential hazards to human health. Even where such names do not exist, however, labels should consistently identify the chemical components with the same name on every product. Also, as the FDA learned in adjusting its nutrition label to include percentages of the U.S. Recommended Daily Allowance, consumers must understand the units of measurement employed and the units must clearly represent the quantities that they identify. Chemical product labels must also

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460. Taylor & Wilkening, supra note 91, at 441–42.
461. Studies concerning the Nutrition Facts label support the contention that locating all relevant consumer health information in one position on the label improves access to that information. See, e.g., Moorman, supra note 458, at 37 (finding that the NLEA label improved both acquisition and comprehension of nutrition information).
462. Id. at 41–42.
465. A number of different options exist for the household chemical ingredient nomenclature; for example, the industry’s voluntary ingredient disclosure program permits use of the “International Nomenclature Cosmetic Ingredient (INCI) name, and/or the International Union of Pure and Applied Chemistry (IUPAC) name, Chemical Abstract Service (CAS) name, Consumer Specialty Products Association (CSPA) Dictionary name, and/or the common chemical name.” AMERICAN CLEANING INSTITUTE, CPICI, supra note 275. Environmental organizations have criticized this aspect of the program due to the confusion caused by the lack of uniform terms. WOMEN’S VOICES FOR THE EARTH, CONSUMERS TO GET MORE INFORMATION, supra note 275.
466. Kessler et al., supra note 79, at 15.
present their information in forms easily understood by the reasonable consumer.

E. Education

The success of the nutrition labeling scheme in the United States has occurred in part due to the improved understanding by consumers regarding the role that nutrition plays in maintaining health. The nutritional labeling scheme included nutrition education as a central theme, and Congress and the FDA saw the NLEA as a means of disseminating the increased scientific knowledge regarding the relationship between diet and health. While much remains uncertain regarding the relationships between household chemical exposure and various human health and environmental harms, educational campaigns that highlight the relationships, much like the FDA and USDA programs that increased consumer knowledge regarding some aspects of nutrition, could allow consumers to make more informed choices. Accompanied by a labeling program corresponding to the substances, health issues, and environmental concerns emphasized by the educational program, consumer knowledge could improve, and their ability to understand the risks they assume with household chemical purchase and use would increase. The same educational goals and aspirations pursued by Congress and the FDA in drafting the NLEA should apply to the new chemical labeling regime.

470. The USDA and FDA nutrition programs have succeeded in increasing knowledge of such nutritional factors as the relationship between diet and heart disease. Guthrie et al., supra note 467, at 246–47. However, studies have also shown that education concerning more complex nutritional issues sometimes fails. Id. at 272. Nonetheless, the educational efforts have provided Americans with a basic understanding of the importance of nutrition to health and have stimulated discussion of nutrition issues in public discourse.
471. RODRICKS, supra note 368, at 318–19.
F. Testing, Standards, and Enforcement

The new labeling legislation will only succeed if the responsible agencies enforce it adequately. Adequate enforcement will require that a number of changes to the current testing and standards be made. Principal among these is pre-market testing for household chemical products and their ingredients. Under the present regulatory regime, both cosmetics regulated by the FDA and other household chemicals regulated by the CPSC and the EPA usually do not undergo testing prior to sale. In contrast, manufacturers must obtain permission from the FDA before using any new food additives. The FDA has defined new food additives as “unsafe for their intended uses unless and until they are proven ‘safe’ on the basis of scientific data and information.” This has resulted in a system that, while occasionally controversial, in part due to the list of “generally recognized as safe” additives in use prior to the Food Additives Amendment for which the FDA has not required testing, has generally ensured that new food ingredients receive some safety.

476. Frederick H. Degnan, Rethinking the Applicability and Usefulness of the GRAS Concept, 46 FOOD DRUG COSM. L.J. 553, 582 (1991) (arguing that the GRAS concept retains usefulness as a means for the FDA to concentrate its resources on important issues); Rulis & Levitt, supra note 475, at 26–27; see also Lars Noah & Richard A. Merrill, Starting from Scratch: Reinventing the Food Additive Approval Process, 78 B.U. L. REV. 329 (1998) (recognizing the usefulness of the GRAS concept but advocating reforms in light of challenges posed by a changing food market).
evaluation before entering the food supply. Similar testing requirements, such as those proposed under the TCSA and the SCA of 2010, should apply to the household chemical industry to ensure that ingredients are evaluated before entering consumers’ homes. Whatever the merits of the “generally recognized as safe” concept for food additives, however, testing for household chemicals must include chemicals already in use as well as newly introduced ones, since so few of them have received official evaluation, and since scientific evidence suggests the need for such evaluation.

The TCSA and the SCA of 2010 provide a blueprint for many of the necessary elements of testing and standards reform. To ensure product safety, new legislation must place the burden on the chemical industry to demonstrate the safety of their household chemical products through sufficient information to show they meet applicable safety standards, rather than on the government to show their toxicity. Manufacturers must provide sufficient information for regulators to assess the toxicity of their products. Legislation must provide for the testing of both newly created and in use but untested chemicals and mixtures, a principle served by the creation of priority lists under the TCSA and the SCA. The government should establish safety standards sufficient to protect public health and the environment with at least an adequate margin of safety.482 As under

478. See supra notes 215, 473.
479. H.R. 5820 § 6; S. 3209 § 7. Environmental groups, the EPA, and even industry trade groups have recognized the need to place more of the burden on manufacturers to provide support for the safety of their products. See, e.g., Denison, supra note 213, at 10022–23; AM. CHEMISTRY COUNCIL, 10 PRINCIPLES FOR MODERNIZING TSCA, available at http://www.americanchemistry.com/s_ace/secmediakits.asp?CID=2178&DID=9938; ENVTL. PROT. AGENCY, ESSENTIAL PRINCIPLES FOR REFORM OF CHEMICALS MANAGEMENT LEGISLATION (2009), available at http://www.epa.gov/opptintr/existingchemicals/pubs/principles.pdf; HLTS, supra note 32, at 54. This bears some similarity to the conditions following passage of the 1906 PFDA, which placed the burden on the government to prove claims false. HLTS, supra note 32, at 54.
480. Wilson & Schwarzman, supra note 19, at 1205.
481. H.R. 5820 § 6; S. 3209 § 7; Denison, supra note 213, at 10023–24.
482. The “adequate margin of safety” standard is employed for National Ambient Air Quality Standards under the Clean Air Act. 42 U.S.C. § 7409(b)(1) (2010). The TCSA employs what could be read as a somewhat more restrictive standard, requiring that “with regard to public health, there is a reasonable certainty that no harm will result, including to vulnerable
the TCSA and the SCA of 2010, safety determinations and the support for them must be made publicly available.\textsuperscript{483} However, as much of the science in this area is ambiguous and uncertain, testing and standards on their own will not likely be sufficient to serve the needs of consumers.\textsuperscript{484} To properly protect consumers, testing and standards must be accompanied by sufficient point-of-purchase ingredient disclosure so that consumers can choose which risks to accept.

\section*{VI. Conclusion}

Over the course of the twentieth century, the American nutritional labeling program has evolved into an effective and informative method of protecting consumers’ rights to choose what to put into their bodies.\textsuperscript{485} As the links between people’s health and the food they eat have become more evident, the regulations ensuring that consumers have the power to make appropriate decisions regarding that food have adapted to accommodate that new evidence.\textsuperscript{486} Room for improvement remains, but the essential structures and populations; and . . . the public welfare is protected.” H.R. 5820 § 6. The SCA of 2011 also applies a “reasonable certainty of no harm standard.” H.R. 2359 § 611(7). This is essentially the same standard employed under the FQPA. Food Quality Protection Act of 1996, Pub. L. No. 104-170, § 404, 110 Stat. 1489, 1514 (1996). Industry groups have questioned the extension of this standard into chemical testing reform, arguing that it would place inappropriate burdens on the manufacture of chemicals that are not intended for consumption, and have advocated for a “safe for use” standard. Soc’y of Chem. Mfrs. & Affiliates, Safe for Use, http://www.socma.com/GovernmentRelations/index.cfm?subSec=26&articleID=2118 (last visited Sept. 20, 2011). Given the uncertainty of much of the science in this area, an absolute certainty standard would likely prove too restrictive in practice. RODRICKS, supra note 368, at 284–90, 309; Sharpe, supra note 379, at 447; Safe for Use, supra. The appropriate standard for TSCA reform remains in dispute. For an argument in favor of a “reasonable certainty” standard, see Rawlins, supra note 17, at 46–50.

\textsuperscript{483} H.R. 5820 §§ 6, 8; S. 3209 §§ 7, 9.

\textsuperscript{484} Completely banning substances on the basis of the slightest uncertainty would also not serve the interests of consumers, as many of these chemicals serve useful purposes in improving the performance and quality of products. It could also cripple the chemical industry, as providing absolute evidence of safety may be impossible in many cases. RODRICKS, supra note 368, at 284–90, 309; Sharpe, supra note 379, at 447; see supra notes 379–84 and accompanying text.

\textsuperscript{485} See supra note 385.

\textsuperscript{486} See supra Part II.
philosophies behind the nutritional labeling regime stand as a model for other labeling programs.

At the same time, the regulatory treatment of household chemical products takes away consumers’ ability to select the chemical exposure risks they are willing to assume. Lax enforcement by administrative agencies and a lack of affirmative Congressional action have deprived consumers of the knowledge they need. The regulations and statutes maintained by the CPSC, the FDA, the EPA, and other agencies do not give consumers sufficient data to make educated decisions, and demand reform.

The nutritional labeling scheme suggests a path forward, providing an example for future household chemical regulation. Mandatory, nationwide, and uniform labeling, reinforced by rigorous testing standards, define the necessary elements of a new labeling regime. Proper attention to the disparate needs of vulnerable consumer groups requires labeling that addresses differing medical concerns and knowledge gaps. Consistent and effective enforcement of the new labeling scheme would provide consumers with the information that they need in order to decide whether the benefits of the chemicals they use outweigh the hazards that they present.

The potential dangers accompanying many common household chemical ingredients demand nothing less.

487. Dunagan et al., supra note 402, at 441–42.
488. Id.
489. Id.
490. See supra Part V.
491. See supra notes 430–46 and accompanying text.
492. See supra Part V.