A Review of Recognized Labelling Practices: The Potential for Improving Health and Environmental Standards

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I. INTRODUCTION

The mandate of the National Committee on Environmental and Occupational Exposures (NCEOE) is to develop and promote activities and public policy that will assist in eliminating or minimizing exposures of Canadians to environmental and occupational carcinogens.[1] The purpose of this report is, first, to review nationally-recognized models of labelling and, second, to identify effective practices that could be used to inform people when products *do* or *do not* contain cancer-causing substances.

The types of labelling that will be discussed in this report are the major labelling systems in Canada, the United States and Europe that provide people with information displayed on the packaging of food, tobacco and consumer products. These include full ingredients labelling, nutrition information, hazard labelling of products that are dangerous or contain dangerous substances, and preferred product labelling, including ecolabelling. Consistent with the Committee's mandate, special attention is taken in the discussion of different labelling systems to identify the way in which carcinogens, in particular, are labelled.

Package labelling is a direct and critical link to the public for both companies and government. Research on tobacco labelling has shown that graphic health warnings are among the most prominent and cost-effective health communications available.[2] Therefore, as a means of communicating health information, package labelling can be a key component of strategies aimed at reducing disease in our society.

The objective of examining different labelling systems is to develop made-in-Canada solutions that would address the growing public interest in full ingredient disclosure and the identification of toxic substances in consumer products.

This report focuses on the potential for labelling systems to improve public health by reducing toxic exposures, and to improve the environmental and health profile of consumer products. Evaluations of the impacts of labelling systems after their introduction have not been done in all cases. However, where available, they have been included.

The scope of this report does not include a discussion or comparison of the design and effectiveness of label formats, although some information is offered in Appendix III. The main sources used in this report are listed in Appendix IV.

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[1] The NCEOE is a committee of the Primary Prevention Action Group of the Canadian Partnership Against Cancer.

[2] Hammond, David, "Tobacco Packaging and Labelling: A Review of the Evidence", November 2007.

II. INFORMATION LABELLING SYSTEMS

Labelling systems can simply provide information that enables people to make an informed choice. This type of labelling does not promote one product over another. However, the information can assist the consumer in purchasing products that may lead to the avoidance of health problems, and can, on a broader scale, promote the reduction of injuries and disease in society.

The three types of package labelling that will be discussed in this section are food labelling, both ingredients and nutrition information, and cosmetics labelling. The labelling of food and cosmetics under Canadian law are both good examples of full ingredient disclosure. With respect to nutrition labelling, Canada was one of the first countries to make it mandatory, and its nutrition tables illustrate how health information can influence people's choices, promote better products and improve public health.

1. Food Labelling

There is currently renewed public interest in food labelling both in North America and Europe.[3] Evidence from the United States suggests that people are increasingly reading product labels "as part of a general lifestyle move towards health".[4] This not only reflects the interest in health, but also arises out of concerns about obesity and highly-publicized food contamination incidents such as the 2006 U.S. spinach recall.[5]

1.1 Canada's Food Labelling

Food labels in Canada must display basic product information that includes a full list of ingredients *and* information on health-related nutrients. In addition, labels must show important information such as durable life dates, countries of origin and the name of the manufacturer.

The Canadian Food Inspection Agency, a federal government agency which shares responsibility for food with Health Canada, describes the food label as

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[3] Food Directorate, Health Products and Food Branch, Health Canada, "Managing Health Claims for Foods in Canada: Towards a Modernized Framework: Discussion Paper", November 2007.

[4] Food Navigator, "Labeling on the agenda for Codex", March 14, 2008. Accessible at http://www.foodnavigator-usa.com/layout/set/print/content/view/print/115330.

[5] U.S. Food and Drug Administration, "FDA finalizes report on 2006 Spinach Outbreak", FDA News, March 23, 2007. Accessible at www.fda.gov/bbs/topics/NEWS/2007/NEW01593.html

"one of the primary means by which consumers differentiate between individual foods and brands to make informed purchasing choices".[6]

The requirements for the labelling of ingredients, which have been in place for many years, are set out in the Food and Drug Regulations of the federal *Food and Drugs Act*. Under these regulations, all packaged food products for sale in Canada must contain a list of ingredients in descending order of their proportion of the product, or as a percentage of the product.[7] The size of the text and its position on the label are also regulated.

Bran Cereal, from Health Canada's "Interactive Nutrition Label: Get the Facts"

Ingredients: Whole wheat, wheat bran, sugar/glucose-fructose, salt, malt (corn flour, malted barley), vitamins (thiamine hydrochloride, pyridoxine hydrochloride, folic acid, d-calcium pantothenate), minerals (iron, zinc oxide).

Nutrition Labelling

Nutrition labelling is a more recent addition to food packaging. As of December 2005, nutrition labelling became mandatory for all packaged foods sold in Canada under the Food and Drug Regulations.[8] Canada followed the lead of the United States where nutrition labelling was made mandatory in 1993.

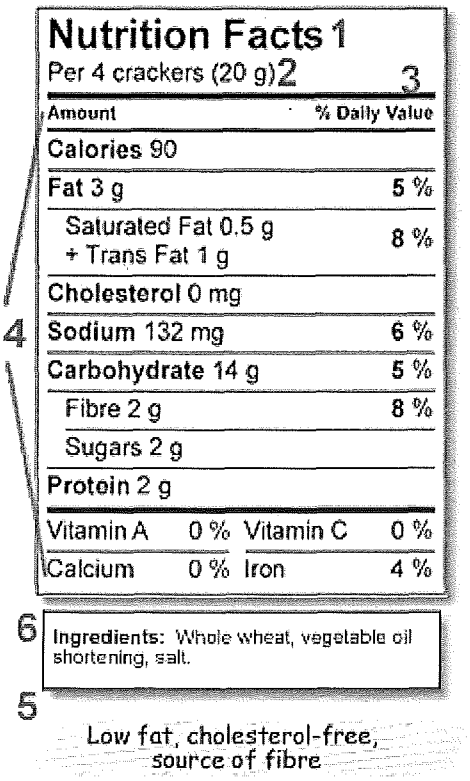
Before the introduction of nutrition labelling, the Canadian government did considerable research on nutrition trends and consumer preferences. A 1996 plan for Canada, "Nutrition for Health: An Agenda for Action", suggested that dietary practices that help reduce the risk of developing chronic diseases would be strengthened if food were labelled to allow for informed choice.[9]

One of the government's objectives in regulating the disclosure of nutrition information was to reduce the risk of chronic disease, and permit the dietary management of chronic diseases of public health significance.[10] The regulations also were meant to encourage companies to develop products with better nutritional values.

Health Canada estimated that nutrition labelling would result in significant cost savings. It calculated that labelling could save more than $5 billion in 20 years

[6] Canadian Food Inspection Agency, "Guide to Food Labelling and Advertising", Chapter 1. Accessible at www.inspection.gc.ca/english/fssa/labeti/guide/ch1e.shtml#1.4
[7] Food and Drug Act, Food and Drug Regulations, Part B, Division 1, B.01.008.
[8] Health Canada, Nutrition Labelling. Accessible at www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/index_e.html
[9] Joint Steering Committee Responsible for the Development of a National Nutrition Plan for Canada, Nutrition for Health: An Agenda for Action, Ottawa, 1996.
[10] Canada Gazette, Regulatory Impact Analysis Statement, Regulations Amending the Food and Drug Regulations (Nutrition Labelling, Nutrient Content Claims and Health Claims, Vol. 137, No. 1, January 1, 2003.

in direct and indirect costs, compared to the $300 million cost to industry. The savings included the reduced costs of treating certain cancers, diabetes, coronary heart disease and stroke, and the broader costs associated with loss of productivity.[11]



The nutrient labelling regulations cover three different types of nutrition information appearing on food labels.[12] They are:

- Nutrition Facts table: This table is a required element of all labelling for packaged food. It has a consistent format and provides information on calories and 13 nutrients – fat, saturated fat, trans fat, cholesterol, sodium, carbohydrate, fibre, sugars, protein, vitamin A, vitamin C, calcium and iron;

- Nutrient content claims: The regulations impose specific requirements for acceptable science-based nutrient content claims such as "low sodium" and "free of transfat"; and,

- Health claims: The regulations permit five claims for foods that indicate certain foods, as part of a healthy diet, may reduce the risk of high blood pressure, heart disease, some types of cancer and osteoporosis.

Nutrition Tables

The nutrients that appear on food labels were chosen for health reasons. For example, saturated and transfats increase the risk of heart disease, while sodium contributes to high blood pressure. Nutrition information allows people buying packaged foods to compare products, to determine the nutritional value of the food and to better manage special diets.[13]

Before the introduction of these regulations, nutrition labelling was not consistent, was offered for only a few nutrients, and the criteria for some claims did not reflect the latest science. By introducing mandatory nutrition labelling, consumers were provided with accurate information in a consistent format that enabled them to judge the health value of the product.

[11] World Health Organization, "Nutrition labels and health claims: the global regulatory environment", 2004, p. 36.
[12] Health Canada, "Frequently Asked Questions About Nutrition Labelling".
[13] Ibid.

In Canada as in the United States, nutrition information is presented in the form of a table. Nutrients are expressed in the Nutrient Facts table as a % Daily Value, or the percentage of a particular nutrient in the product that would be part of the recommended daily intake.

Research into the presentation of nutrition labelling information indicated that the standard (vertical) format was the "easiest and fastest to read and use".[14] A linear format was considered to be the most difficult. As a result, the Regulations have criteria to maximize the use of the standard vertical format wherever the available display space on the package allows. The Regulations also include minimum specifications for type size (8 point font) and spacing for several possible formats.[15]

Where packages have more than 100 square centimetres of display space, nutrition tables must be at least 15% of the packaging. When packages do not have 100 square centimetres, they do not have to display the table, but they must provide consumers with a way of obtaining the information through a toll-free number or postal address.

Health Claims

Health claims, such as Canada's, are regulated in only a few countries, and their use is more controversial than nutrition information.[16] The allowable claim for cancer reads "a healthy diet rich in vegetables and fruit may help reduce the risk of some types of cancer". This claim is part of the government's broader strategy to reduce cancer.

Canada, along with many other countries, is currently reviewing the regulatory framework for health claims on food.[17] Regulation is generally thought to reduce the number of confusing or misleading claims by companies. However, nutrition label message testing, done with focus groups by Health Canada, found that multiple sources of nutrition information are confusing, and that many people did not trust health claims.[18] Nutrition facts and the list of ingredients were viewed as providing more complete information.

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[14] Canada Gazette Vol. 137, No. 1, Regulatory Impact Analysis, Regulations Amending the Food and Drug Regulations (Nutrition Labelling, nutrient content claims and health claims), January 1, 2003.
[15] Schedule L, Regulations Amending the Food and Drug Regulations (Nutrition Labelling, nutrient content claims and health claims),
[16] COI Communications on behalf of the Food Standards Agency (U.K.), "Review and analysis of current literature on consumer understanding of nutrition and health claims made on food", April 20, 2007.
[17] Food Directorate, Health Products and Food Branch, Health Canada, "Managing Health Claims for Foods in Canada: Towards a Modernized Framework: Discussion Paper", November 2007.
[18] Health Canada, "Research: Nutrition Label Message Testing", September 12-18, 2000.

1.2 European Union Food Labelling

Food labelling is governed in the European Union by the Labelling, Presentation and Advertising of Foodstuffs Directive, passed in March 2000.[19] It requires that packaged foods be labelled with the name of the product, the list of ingredients in descending order of weight, the use-by date and any special conditions of use. It also requires compulsory labelling of use-by dates and places of origin, similar to Canadian packaging requirements.

The European Union has been slower than North America to introduce nutrition labelling. A proposal to make nutrition labelling mandatory for packaged foods was proposed in January 2008, but has not yet been approved. Two reasons for proposing mandatory labelling (with a print size of at least 3 millimetres) are to address the problems consumers have in finding essential information on food labels, and to promote healthier diets by providing consumers with clear, accurate and relevant information.[20]

There are two other important differences between European and North American food packaging legislation.

One important difference is the percentage labelling of the major ingredient in a packaged food. The EU's Labelling Directive requires that the quantity of an ingredient or category of ingredients that is emphasized in the food must be identified and shown as a percentage of the quantity of the product.[21]

Known as a "quantitative ingredient declaration", this information can help consumers identify the relative quantities of healthful and less healthful components of a food product.[22] It means, for example, that a package of frozen breaded fish fillets would be labelled according to the amount of fish in the product. The International Association of Consumer Food Organizations found that a U.S. brand of fish fillets sold in Australia contained only 55% fish while a local store brand contained 70% fish.[23]

A second major difference in food labelling between Canada and the United States and the European Union is the requirement Europe-wide that genetically

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[19] Directive 90/496/EEC, as amended by Directive 2000/13/EC.
[20] European Commission, "Commission proposal to overhaul EU food labelling rules", Brussels, January 30, 2008.
[21] Article 7, Labelling, Presentation and Advertising of Foodstuffs Directive, states that the quantity of an ingredient or category of ingredients must be stated where the ingredient appears in the name of the food, where it appears in the name of the product, where it is emphasized on the labelling in words, pictures or graphics, or where it is essential to characterize a food.
[22] World Health Organization, "Nutrition labels and health claims: the global regulatory environment", 2004, p. v.
[23] Comments from the International Association of Consumer Food Organizations to the Joint FAO/WHO Food Standards Programme Codex Committee on Food Labelling, 31st Session, Ottawa, Canada, April 28- May 2, 2003.

modified foods, or foods containing genetically modified ingredients, be identified on food labels.[24] The Directive on the Traceability and Labelling of Genetically Modified Food is designed to ensure that consumers are "fully and reliably informed about GMOs" to allow them to make an informed choice about the product.[25]

2. Cosmetic Labelling

Another example of full ingredient disclosure is the labelling of cosmetics and personal care products.

2.1 Canada's Cosmetic Regulations

As of November 2006, Canada's Cosmetic Regulations, regulated under the *Food and Drugs Act*, required a list of all ingredients contained in a cosmetic on the outer label of a product in descending order of predominance, in their concentration by weight.[26] The information must be "clearly legible" throughout the useful life of the cosmetic. The definition of cosmetics – "a product which cleanses, improves or alters the complexion, skin, hair or teeth" -- includes personal care products.

The purpose of these regulations was to "strengthen the protection of the health and safety of the Canadian public with regard to the use of cosmetic products".[27] The disclosure of ingredients on cosmetic packaging was intended to help people avoid ingredients that could cause problems such as allergic reactions.

Voluntary labelling was judged to be "insufficient to address health needs". Health Canada estimated that between 2 and 5% of the adult population using these products experienced reactions. Because products generally did not have ingredient labels, there was, according to Health Canada, a higher than necessary risk of adverse reactions for people using these products.

The revised Cosmetic Regulations brought Canada's requirements for labelling into line with regulations that have been in effect in both the United States and

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[24] Regulation (EC) No 1830/2003 of the European Parliament and of the Council of 22 September 2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC.

[25] Regulation (EC) No 1830/2003 of the European Parliament and of the Council of 22 September 2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC, (11).

[26] Sections 21.1 to 21.5, List of Ingredients, Cosmetic Regulations, Food and Drugs Act.

[27] Canada Gazette, Regulatory Impact Analysis Statement, Regulations Amending the Cosmetic Regulations, Vol. 138, No. 24, December 1, 2004.

the European Union for many years. The labelled ingredients use the International Nomenclature of Cosmetic Ingredients (INCI names), also used in the United States and Europe. These regulations are administered by the Cosmetics Division of the Consumer Product Safety Bureau of Health Canada.

The ingredient lists, however, do not cover all ingredients present in cosmetics and personal care products. Ingredients used for the purpose of fragrance or flavouring are identified only by the general headings of "parfum" (meaning fragrance) or "aroma" (meaning flavour).[28] This is an important omission because as many as 300 chemicals are used as perfumes and flavourings, some of which have toxic effects. Because of this, a recent directive of the European Union has made it mandatory that cosmetic companies identify on product labels 26 perfume ingredients with known allergenic effects.

The revised Cosmetic Regulations have been in place for 2 years now, and, according to Health Canada, no impact evaluation has been done since their introduction.[29]

Hazard Warnings on Cosmetics

In addition to ingredients listing, there are some hazard warnings required for cosmetic labels. Under Canada's Cosmetic Regulations, hair dyes containing paraphenylenediamine or other coal tar dye bases or intermediates must carry a warning that says:

> CAUTION: This product contains ingredients that may cause skin irritation on certain individuals....This product must not be used for dyeing the eyelashes or eyebrows. To do so may cause blindness.

Special cautionary statements are also advised under Health Canada's list of prohibited and restricted cosmetic ingredients (the Hotlist) for chemicals such as alpha hydroxy acids, talc, and triclosan.[30] However, it is unclear whether companies use the recommended warnings in the Hotlist, or whether Health Canada enforces their use.

In addition to concerns about allergies or other problems, consumers are also able to use ingredient lists to avoid certain chemicals, such as carcinogens. Although manufacturers are responsible for ensuring the safety of cosmetics,

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[28] Section 21.4 (3), Cosmetic Regulations, Food and Drugs Act.
[29] Personal Communication with Angela Richardson, Scientific Regulatory Officer, Cosmetics Division, Consumer Product Safety Bureau, Health Canada, July 30, 2008.
[30] Health Canada, List of Prohibited and Restricted Cosmetic Ingredients. Accessible at http://www.hc-sc.gc.ca/cps-spc/person/cosmet/info-ind-prof/_hot-list-critique/prohibited-eng.php

Canada's legislation does not require safety testing prior to products being placed on the market. In the last ten years, there has been growing public concern about the presence of carcinogens and other toxic chemicals in these products. For example, formaldehyde, an IARC Group 1 (known human) carcinogen, is permitted in nail hardeners.[31]

2.2 European Union Cosmetics Directive

The framework of the European Union's cosmetics legislation is similar in many respects to Canada's, but improves on Canada's labelling requirements by requiring the labelling of certain fragrance ingredients.

As a result of a major amendment to the Cosmetics Directive in 2003, 26 fragrance ingredients that cause contact-allergy reactions in fragrance-sensitive consumers must now be identified in the list of ingredients for cosmetic products.[32] The purpose of identifying these fragrances is to allow people to avoid the use of cosmetic products which they do not tolerate, and to improve the diagnosis of contact allergies.

Under the same amendment, substances classified in the EU as carcinogenic, mutagenic or toxic to reproduction (CMRs) Classes 1 and 2, known and probable carcinogens, were prohibited from use in cosmetics based solely on these properties, rather than on risk assessment.[33] Class 3 CMRs, which are only possible carcinogens, cannot be intentionally added to cosmetics unless companies can show that the levels do not pose any threat to human health.[34]

3. Lessons Learned from Information Labelling

- Labelling can contribute to public health goals and reduce health care costs.

For both full ingredient disclosure and nutrition labelling, labelling requirements provide people with important health-related information. A full list of ingredients displayed on packaged food or personal care products helps

[31] Ibid., under "formaldehyde".
[32] Article 6, Directive 76/768/EEC, as amended by the Seventh Amendment, Directive 2003/15/EC.27 February 2003. These ingredients are listed in Annex III.
[33] Article 4b, Cosmetics Directive. The list of chemicals defined as carcinogens, mutagens and reproductive toxicants (CMRs) Classes 1, 2 and 3 are found in Annex I of the Dangerous Substances Directive (67/548/EEC).
[34] Section 13 of the introduction to Directive 2001/15/EC states that: "Given the special risks that substances classified as carcinogenic, mutagenic or toxic for reproduction, category 1, 2 and 3, pursuant to Directive 67/548/EEC may entail for human health, their use in cosmetic products should be prohibited. A substance classified in category 3 may be used in cosmetics if the substance has been evaluated by the SCCNFP

adults and children with allergies or other sensitivities to avoid specific substances.

In the case of ingredient labelling for cosmetics, public benefits were found to be the reduction of specific adverse health effects, uncertain adverse health events, nuisance risks and other benefits.[35] The Regulatory Impact Analysis Statement found that the lack of ingredient labelling had "contributed to a higher than necessary risk of adverse reactions to cosmetics because users were unable to avoid products containing substances to which they were sensitive".[36]

Another benefit was the ready access of medical professionals to the names of ingredients in products that enabled them to provide more effective care. Health Canada, in its analysis, found that companies would benefit from reduced customer service costs and improved competitiveness in both Canadian and foreign markets.

One of the government's objectives in the case of nutrition labelling was to provide people with information about the nutritional properties of foods in order to reduce their "risk of developing chronic diseases and permitting dietary management of chronic diseases of public health significance".[37] Health Canada estimated that more than $5 billion in benefits, including reducing diseases such as cancer, would be realized from nutrition labelling regulations.

- Mandatory labelling results in more reliable and consistent labelling than voluntary initiatives.

Before food and cosmetics required ingredients labelling, many companies voluntarily provided some kind of ingredients listing. In Canada, the legal requirements for full ingredient disclosure and nutrition labelling replaced voluntary declarations by companies, and put in place a uniform format that allows people to compare products.

With respect to cosmetics, Health Canada found voluntary ingredient listing was not adequate for health needs.[38] Ingredient listing was designed to provide "the Canadian public with information that allows them to avoid products that contain an ingredient that may cause an adverse reaction".[39] Regulated ingredient listing ensured that individuals with allergies or sensitivities to particular ingredients had access to consistent information, and provided medical practitioners with information helpful for treating their patients.

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[35] Canada Gazette, Vol. 138, No. 24, Regulatory Impact Analysis Statement, Regulations Amending the Cosmetic Regulations, December 1, 2004.
[36] Ibid.
[37] Canada Gazette, Vol. 137, No. 1, Regulatory Impact Analysis, Regulations Amending the Food and Drug Regulations, January 1, 2003.
[38] Canada Gazette, Vol. 138, No. 24, Regulatory Impact Analysis Statement, Regulations Amending the Cosmetic Regulations, December 1, 2004.
[39] Ibid.

Similarly, for adverse reactions or illnesses in the workplace, medical practitioners have access to ingredients information in material safety data sheets. This information is not available for hazardous consumer products.

Mandatory labelling also results in increased use of label information. With the introduction of U.S. regulations which replaced voluntary nutrient declarations, the use of labels increased by 8.5% by women and 11.3% by men.[40]

- Labelling can be confusing if the information is not presented in an easily understandable format.

Some surveys of nutrition labelling indicate that people may have trouble understanding the information when presented in certain formats. In a survey of Canadians' use and understanding of the nutrition tables before they were regulated, researchers found that the barriers for some groups of people included the effort required to read and understand the information, the poor legibility from the density of information and the small print size, the inconsistent way in which information was presented and the lack of availability of information on some products.[41]

Recent surveys of Canadians found that consumers, although they welcome health and nutrition information, are confused about health claims. In addition, some people lack the level of literacy needed to handle the complexity of information about diet and health needed to make informed choices.[42]

- Labels provide valuable information at the point-of-purchase.

Nutrition information builds on the full disclosure of ingredients on food packaging by providing health-related information that can influence people's food choices at the point of purchase. In 1997 before nutrition labelling was regulated, the National Institute of Nutrition in Ottawa found that 71 per cent of Canadians reported using food labels as a source of nutrition information, up from 64 per cent in 1991.[43] This information played an important role in food purchasing.

A further study in 1999 found that a majority of Canadians use food labels to:

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[40] Kristal, A.R. et al (1998) Trends in Food Label Use Associated with New Nutrition Labelling Regulations, American Journal of Public Health 88(8): 1212-15.
[41] National Institute of Nutrition, "Nutrition Labelling: Preferences and Preferences of Canadians", June 1999, p. 9.
[42] Food Directorate, Health Products and Food Branch, Health Canada, "Managing Health Claims for Foods in Canada: Towards a Modernized Framework: Discussion Paper", November 2007.
[43] National Institute of Nutrition, "Tracking Nutrition Trends 1989-1994-1997", Ottawa, April 1997.

- see whether a product is rich in nutrients or ingredients they were trying to eat more of;
- determine whether a product contains nutrients or ingredients they are trying to avoid;
- assess the calorie content; and,
- compare similar or different types of food.[44]

Similarly, surveys in the United States have shown that a significant proportion of American consumers use nutrition labels, and suggest that label use does affect the choices of consumers.[45] As well as food choice, U.S. evidence also shows that mandatory nutrition labelling has affected diet. For example, consumers who use nutrition labels obtain a lower percentage of their total calories from fat, and have a higher daily dietary fibre intake.[46]

- There is generally strong public support for information on labels.

Before nutrition labelling became mandatory, Canadian surveys showed that 93% of the population wanted to see widespread nutrition labelling.[47] A more recent study of consumers in Australia and New Zealand, done in 2007, showed that 33% of Australians and 25% of New Zealanders always referred to the labelling information when purchasing a product for the first time.[48] The survey showed "there was a clear positive relationship between consumers' health consciousness and dietary concerns and their frequency of referring to label information".

A U.S. report, Label Reading from a Consumer Perspective, found that in 2007 28% of American consumers were reading food labels "much more frequently" than one year before. Half of the people surveyed considered the nutrition facts panel, while 47% checked the ingredient lists.[49]

With respect to consumer products where ingredient labelling is *not* mandatory, surveys conducted by the Canadian Cancer Society show that many Canadians would also like to see full ingredients disclosure of consumer products.

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[44] National Institute of Nutrition, "Nutrition Labelling: Perceptions and Preferences of Canadians", Ottawa, 1999.
[45] World Health Organization, "Nutrition Labels and health claims: the global regulatory environment", 2004.
[46] Ibid, p. 41. See also Neuhauser, ML, AR Kristal & RE Patterson (1999) Use of Food Nutrition Labels is Associated with Lower Fat Intake, American Dietetic Association 99(1): 45-53.
[47] National Institute of Nutrition, "Nutrition Labelling: Perceptions and Preferences of Canadians", Ottawa, 1999.
[48] Food Standards Australia New Zealand, "Consumer Attitudes Survey 2007: A benchmark survey of consumers' attitudes to food issues", January 2008.
[49] Food Navigator, "Report examines label reading priorities and obstacles", December 20, 2007. Accessible at www.foodnavigator-usa.com/layout/set/print/content/view/print/175414

An Ipsos Reid Survey for the Canadian Cancer Society, Saskatchewan, conducted in February 2008, found "virtually all Saskatchewan residents agree that consumers have the right to know the ingredients that are contained in the products they purchase", and that "the vast majority would support their provincial government passing legislation that would require companies and manufacturers to clearly label all of their products that contain substances that have been linked to an increased risk of some cancers". A Canadian Cancer Society poll, released in April 2008, had the same findings.

The President of the Canadian Consumer Specialty Products Association acknowledged that companies "have seen an increase in consumer interest about the particular ingredients in the products".[50] In response to this interest, in April 2008 the Canadian Consumer Specialty Products Association proposed a voluntary industry-led initiative to disclose ingredients present in concentrations greater than 1% in their products.[51]

The proposed products include air care, automotive, cleaning and floor maintenance products and polishes. Ingredient information would be made available either through labels, toll-free numbers, on company websites or other non-electronic means by January 2010.

- Labelling can lead to improvements in the formulation of the product.

After the introduction of mandatory nutrition labelling in the U.S. in 1990, data showed that some manufacturers reformulated food products to improve the information in the nutrition facts tables and to market more nutritious products which could meet nutritional criteria and the criteria for health claims.[52]

- Labelling may display many types of information helpful to the consumer.

Labelling on the package of a single product does not have to be restricted to a single message. Labelling may provide for many different types of information. For example, in addition to full ingredient disclosure, the labels of packaged foods display best before dates, countries of origin and highly visible nutrition tables and health claims. Similarly, Canadian cosmetic labels not only display their ingredients but, in some instances, are also required to display hazard warnings.

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[50] The Globe and Mail, "New product ingredient lists fall short, critics say", April 4, 2008.
[51] Media Release, "Industry provides ingredient information to Canadians", Canadian Consumer Specialty Products Association, April 2, 2008. Accessible at www.ccspa.org/
[52] Canada Gazette, Vol. 137, No. 1, Regulatory Impact Statement, Regulations amending the Food and Drug Regulations Nutrition Labelling, nutrient content claims and health claims, January 1, 2003.

III. Hazard Warning Systems

Where there is a potential exposure to a hazardous product or hazardous ingredient in a product, warnings on labels can be used to draw attention to a potential health risk. These warnings also help governments fulfill their responsibility as a regulator to warn people.[53]

Well-established examples of hazard warnings that will be discussed in this section include tobacco packaging, labelling that identifies hazards in consumer products including the international Globally Harmonized System, the identification and labelling of hazardous materials in the workplace, and California's consumer product warnings developed under Proposition 65.

4. Tobacco Labelling

Tobacco labelling is of particular interest because both tobacco and cigarette smoke contain recognized carcinogens, and tobacco use is a preventable cause of cancer. It is also a useful example because its labelling strategy is based on an extensive body of consumer research conducted by the federal government.[54] There is considerable evidence from the regulation of tobacco products demonstrating the effectiveness of hazard labelling.

Canada has been an international leader in tobacco control, and was the first country in the world to introduce picture warnings. Under the *Tobacco Act*, and the Tobacco Products Information Regulations adopted in 2000, tobacco packaging in Canada focuses messages in three key areas:

- graphic health warnings, which are found on the principal display surfaces;

- a toxic emissions statement, found on the sides of packages; and,

- health information messages, which describe the hazards of tobacco use such as lung cancer or second hand smoke, or provide tips on quitting smoking, found on the slide panels.

The Tobacco Products Information Regulations set out the graphics, size, location and content requirements for each of the three elements. Messages

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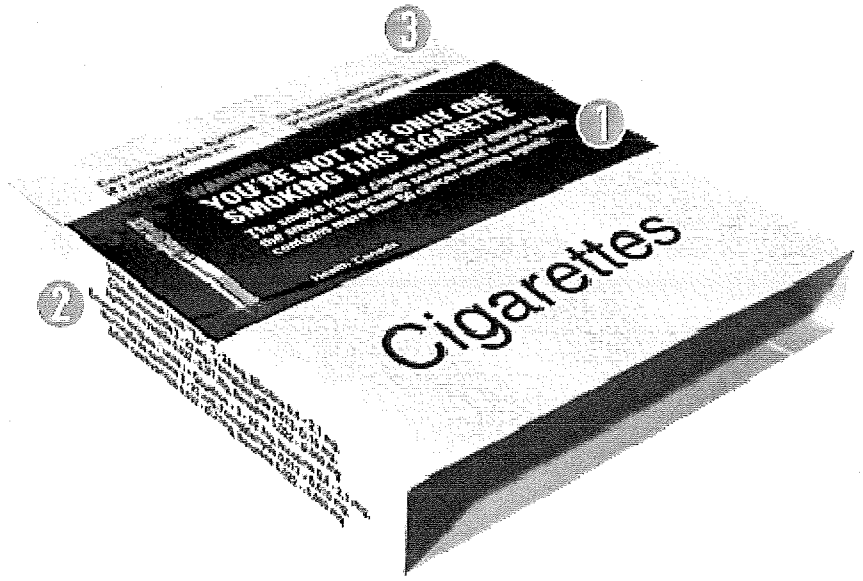
[53] Hammond, David, Tobacco Packaging and Labelling: A Review of Evidence, November 2007, p. 4.

[54] Since 2000, the Tobacco Control Programme of Health Canada, which administers health warnings on tobacco packaging, has been monitoring and evaluating their impact on consumer awareness, knowledge and behaviour using surveys, presented as Waves 1 to 12.

were to employ colour and graphics, be increased in size from previous warnings, contain concrete facts and statistics and address issues of concern to product users.



The Tobacco Act requires that certain information be displayed on packages of all tobacco products: 1) Graphic health warnings; 2) Toxic emissions statement; and, 3) Health information messages

The benefits and costs of the Tobacco Products Information Regulations were anticipated to be reduced mortality and illness, reduced health care costs and reduced employer costs. It was estimated that the regulations, at a minimum, would result in a long term 1% reduction in tobacco use and an eventual 1% reduction in tobacco-related deaths.

Tobacco products in Canada carry more prominent warnings on packages than in the United States or Europe. However, both the United States and Europe, like Canada, have signed the international Framework Convention on Tobacco Control and will be moving to meet standards already in place here, including health warnings and labelling of emissions.

Tobacco warnings have been shown to influence smoker's decisions to quite or reduce smoking. Government research leading up to the 2000 Regulations showed that "the display of important facts on the package directly assists users in their decision not to smoke". [55] In addition, an independent study of adult smokers in Ontario, interviewed before and after the introduction of tobacco warning labels, found that a high proportion (91%) remembered the warning

[55] Canada Gazette, Vol. 134, No. 14, Regulatory Impact Analysis Statement, Tobacco Products Information Regulations, April 1, 2000.

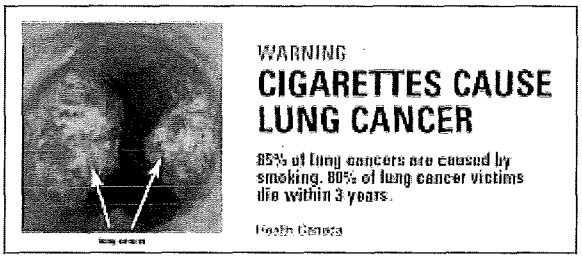
labels and were aware of their content. The study also found that the smokers, who recalled the labels well were most likely to have stopped smoking, attempted to stop smoking or reduced their smoking.[56]

Since the introduction of the tobacco labelling regulations in 2000, Health Canada has done considerable research on their impact on consumers, and, based on this research, has recently proposed changes to the current framework.

Graphic Health Warnings

Graphic health warnings on tobacco packaging have been extremely effective in communicating the hazards of smoking. Canada's tobacco packages feature 1 of 16 full-colour health warnings covering more than 50% of the front and back of cigarette packages.

Health Canada's extensive research has shown that both smokers and non-smokers of all ages strongly support the prominent display of graphic health warnings.[57] According to Health Canada, they are considered "noticeable, serve as a major...source of information on the health effects of tobacco use, and are seen as both credible and informative".[58]



Studies also show that pictures are more effective than text-only messages for warning people, and that they are important for reaching low-literacy smokers and children.[59]

An international survey of data from Canada, the United States, Britain and Australia, published by the University of Waterloo, found that the two main components of an effective warning system were using pictures that

[56] Hammond, David et al. (2003) Impact of the graphic Canadian warning labels on adult smoking behaviour, Tobacco Control 12(4): 391-5.
[57] Environics, Canadian Adult and Youth Opinions on the Sizing of Health Warning Messages, October 1999. Accessible at www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/por-rop/label-etiquet-eng.php
[58] Health Canada, "A Proposal for new health-related Information on Tobacco Product Labels, Building on Success: A Consultation Paper", August 2004. Accessible at www.hc-sc.gc.ca/hl-vs/pubs/tobac-tabac/advert-publicite/index_e.html
[59] Ibid, p. iii.

communicate health risks, and refreshing the messages.[60] Health messages in the United States that had not been changed since 1984 were found to be the least effective.

In their proposal for regulatory changes, Health Canada has suggested creating a new series of health warnings that would be rotated every two years, and would include a variety of approaches and methods. The government particularly wants to tailor the messages to adults with low literacy skills that have not been able to readily understand the health warnings and toxics emissions statements currently on the packages.

David Hammond, a researcher at the University of Waterloo, summed up the effectiveness of Canada's graphic health warnings:

> All evidence suggests graphic warnings are (i) a prominent source of health information, second only to television in many jurisdictions; (ii) more likely to be noticed and discussed than text warnings; (iii) associated with greater health knowledge; (iv) associated with increased cessation behaviour, and (v) enjoy high credibility and support from smokers themselves.[61]

Emissions Labelling

In addition to graphic warnings, the tobacco regulations require a statement of the levels of 6 different toxins and the range of their levels present in tobacco smoke. The 6 toxins are tar, nicotine, carbon monoxide, formaldehyde, hydrogen cyanide and benzene. Formaldehyde and benzene are both classified as IARC Group 1 (known human) carcinogens.

Research has shown that these emissions statements are not well understood by consumers. In focus groups, smokers indicated that they were aware that nicotine and tar could cause health problems, but only a small percentage mentioned the other four substances. Even so, some smokers were still encouraged to quit or smoke less as a result of this information.

Smokers also indicated that they wanted direct, easy-to-understand information about toxic emissions.[62] They were most supportive of texts that presented only one substance with information on the impact of that substance on health. They generally felt that information should be given to people who smoke.

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[60] Hammond, David et al. (2007) Text and Graphic Warnings on Cigarette Packages: Findings from the International Tobacco Control Four Country Study, American Journal of Preventive Medicine, 32(3): 210-217.

[61] Hammond, David et al., Letter to the Editor, "Showing leads to doing: Graphic cigarette warning labels are an effective public health policy", European Journal of Public Health, Vol. 16 (2): 223-4.

[62] Phoenix Strategic Perspectives Inc., "Final Report: Qualitative Testing of Toxic Emissions Statements prepared for Health Canada", November 2007.

Health Canada originally proposed that toxic emissions statements be replaced with a series of statements that would present clear and concise information about the toxicity of eight substances found in tobacco smoke including their health effects and range of toxic emission values. [63] However, the government has instead proposed retaining the list of the 6 toxic emissions ingredients but without any numerical toxic emissions values.[64]

Health Information Messages

Of all the packaging elements, health information messages are the least successful in attracting attention and influencing behaviour. Health Canada's research showed that few Canadians read or notice health information messages, which are located either on the back panel of a slide pack or on a stand-alone leaflet.

These messages describe the hazards of smoking and provide tips on quitting. They can be anywhere on the package, except on the principal display surface or the bottom and must occupy between 60% and 70% of the side on which it is displayed. Health Canada has proposed that these messages be presented more clearly and simply.

5. Hazardous Consumer Product Labelling

5.1. Globally Harmonized System of Classification and Labelling of Chemicals

Any discussion of consumer product labelling requires an understanding of the proposed Globally Harmonized System of Classification and Labelling of Chemicals, known as GHS. All countries discussed in this report are currently in the process of deciding when and how to implement this system.

In every country, the GHS will affect four major sectors – consumer products, pesticides, the transportation of dangerous goods and workplace chemicals. It does *not* cover pharmaceuticals, food additives, cosmetics and pesticide residues in food at point of purchase.[65]

The GHS, as it is described here, applies to labelling of hazards in consumer products, particularly carcinogens, and the status of its implementation in Canada, the EU and the United States. The GHS will also result in changes to

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[63] Health Canada, "Building on Success: A Proposal for New Health-related Information on Tobacco Product Labels", August 2004.
[64] Canada Gazette, Vol. 142, No. 22, Regulations Amending the Tobacco Products Information Regulations, May 31, 2008.
[65] Health Canada, The Globally Harmonized System for the Classification and Labelling (the GHS) – Implementation of the GHS in Canada. Accessible at: www.hc-sc.gc.ca/ahc-asc/intactiv/ghs-sgh/index-eng.php

Canada's Workplace Hazardous Materials Information System (WHMIS). Consensus has already been reached by a tripartite committee coordinated through the National WHMIS Office to adopt all GHS classification and labelling elements, including symbols and hazard statements, as part of WHMIS. However, the label design and some discretionary aspects of the labels have not yet been finalized.

Under the direction of the United Nations, a system for classifying chemical hazards and communicating this information through labels and safety data sheets has been developed. It can be used internationally to facilitate the safe use of chemicals and to reduce barriers to trade.[66] For example, it can resolve differences where one country labels a product or substance as flammable or carcinogenic while another doesn't.

The GHS allows countries to use a "building block" approach in implementing the system.[67] This means that after adopting the core classification and labelling requirements of the GHS, countries can decide which additional elements of the GHS they will adopt. Ultimately, the objective of the GHS is the international harmonization of classification and labelling, and all countries are strongly urged to adopt GHS in its entirety.

If the GHS is applied to consumer products in Canada, the most visible outcome of the GHS will be product labelling. Labelling is determined by the classification of the product or the ingredients in the product, according to the health, environmental and physical hazards.

Under the GHS labelling proposals, there are 3 main label elements that relate to potential hazards in the product:

- Symbols: 9 different symbols indicate hazards, including a flame, flame over circle, exploding bomb, corrosion, skull and crossbones, exclamation mark, environment, and health hazard. The symbol for a health hazard, depicted by a human head and torso with a central radiating light in the torso, would be used for a number of health hazards, including carcinogens.

- Signal words: 2 different signal words on the label, "danger" and "warning", indicate the relative level of severity of hazard, with danger being used for more severe hazard categories.

- Hazard statements: phrases that describe the nature of the hazard, and, in some cases, the degree of hazard. For example, a hazard statement displayed on a mixture containing a carcinogen, known to cause cancer,

[66] Health Canada, "The Globally Harmonized System for the Classification and Labelling of Chemicals (GHS): Overview".
[67] Ibid.

would say: "May cause cancer". The route of exposure would be stated on the label if it is conclusively proven that no other routes of exposure cause the hazard.

The UN encouraged countries to implement the GHS quickly, and it was hoped that many would have it in place by 2008. Canada is committed to implementing the GHS for workplace chemicals, but is still conducting economic analyses and finalizing recommendations for the implementation of GHS for consumer products.

5.2 Labelling of Hazardous Products in Canada

At the present time, the labelling of hazardous consumer products in Canada is governed by the Consumer Chemicals & Containers Regulations of the *Hazardous Products Act* (Part I), administered by Health Canada's Consumer Product Safety Bureau.

The Consumer Chemicals and Containers Regulations, 2001, (CCCR, 2001), set out classification criteria, labelling and packaging requirements for consumer products. Like the GHS system, labels on hazardous consumer products are required to include 3 standardized elements – 1) symbols, 2) signal words, and 3) hazard statements.

The size and location of the information required on containers is proscribed in the Regulations. The hazard symbol, the signal word ("extreme danger", "danger" or "caution") and the primary hazard statement must be displayed on the main display panel.[68] Specific hazard statements, negative and positive instructions, and first aid statements may be displayed on any part of the container.

When CCCR, 2001 were introduced in 2001, the social losses from injuries and deaths associated with consumer chemical products was estimated to be $627 million annually.[69] The changes to the regulations were expected to save $9.9 million annually beginning in the second year. Regulatory measures were considered necessary to protect consumers because of the increasingly large percentage of imported products and to create a level playing field for producers of consumer products by introducing regulations that covered all products.[70]

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[68] , Sections 25 and 26, Consumer Chemicals and Containers Regulations, 2001.

[69] Canada Gazette, Part II, Vol. 135, No. 17, Regulatory Impact Analysis Statement, Consumer Chemicals and Containers Regulations, 2001, August 1, 2001. The costs and benefits were based on a detailed economic study carried out in 1995 entitled "Costs and Benefits of Proposed Changes to the Consumer Chemicals and Containers Regulations". The total costs to industry and government over 25 years were estimated at $49.1 million over 25 years.

[70] Ibid. p. 1618.

Differences with the GHS

With respect to labelling of consumer products, there are major differences between CCCR, 2001 and the proposed GHS system that must be resolved prior to implementation.

The most important difference is that Canadian regulations do not include classification and labelling provisions for repeated and chronic health hazards. The hazards not covered under the CCCR, 2001 but included in the GHS, are: skin or respiratory sensitization, mutagenicity, carcinogenicity, reproductive toxicity, effects on or via lactation, single or repeated exposure target organ toxicity.[71]

The focus of CCCR, 2001 is acute hazards – toxicity, corrosivity, flammability, quick skin bonding characteristics and pressurized containers. The following hazard symbols are used on Canadian consumer products. There are only 4 symbols because there is no hazard symbol for quick skin bonding.

HAZARD SYMBOLS[72]

Item	Column 1 Description	Column 2 Symbol
1.	TOXIC	
2.	CORROSIVE	
3.	FLAMMABLE	
4.	EXPLOSIVE	

[71] Health Canada, "The Globally Harmonized System for the Classification and Labelling (the GHS) – Implementation of the GHS in Canada", Annex I, Table 1.
[72] Schedule 2 (Subsection 1(1) and section 21), Consumer Chemicals and Containers Regulations 2001.

Item	Column 1 Description	Column 2 Symbol
		

In its analysis of the GHS in comparison with Canadian regulations, Health Canada says that classifying and labelling substances according to carcinogenicity, reproductive toxicity and other health endpoints, which are included in the GHS, will *likely* be adopted by CCCR, 2001 as part of the GHS implementation. This was confirmed by a spokesperson from Health Canada.[73] Health Canada is also considering proposing that Category 1 carcinogens, known human carcinogens, be prohibited from use in consumer products.

If the GHS is adopted for carcinogenicity, it would introduce the classification and labelling of chemicals or substances as Category 1A, 1B or Category 2 carcinogens (known, probable and suspected, respectively).

These would be identified on the label as, for example, "Category 1A: known human carcinogen". The label would include a signal word – "danger", and a hazard statement -- "may cause cancer". In addition, the route of exposure would be included if it is proven that no other routes of exposure cause the hazard.

The following table, taken from Health Canada's *Comparison of Sector Interim Recommendations or Preferred Options*, illustrates the GHS labelling to indicate the presence of a carcinogen in a product that could be adopted in Canada.

[73] Personal communication with Claude Chartrand, GHS Project Office, Consumer Product Safety Bureau, Chemical and Flammability Division, Health Canada, April 15, 2008.

GHS	Category 1A	Category 1B	Category 2
	Known human carcinogen  **Danger** **May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)**	Presumed human carcinogen  **Danger** **May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)**	Suspected human carcinogen  **Warning** **Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)**
CC	Pending discussion of ad hoc Expert Group on Chronic Hazards	Pending discussion of ad hoc Expert Group on Chronic Hazards	Pending discussion of ad hoc Expert Group on Chronic Hazards
PCP*	**Yes**	**Yes**	**Yes**
TDG	**No**	**No**	**No**
WHMIS**	**Yes, adopt 1A , 1B as Category 1**		**Yes**

One of the issues concerning the implementation of the GHS in Canada is how consumer products should be labelled for chronic hazards. Non-governmental organization support chronic hazard labelling that indicates the presence of a known hazardous chemical in a product, as proposed by the GHS. However, industry has argued that chronic hazard labelling should be done on the basis of a risk assessment. A hazard-based approach would require a product to be labelled according to the hazardous properties of the substance or an ingredient in the product, while the risk assessment approach would be based on the expected exposure and magnitude of risk to the user.

Although a risk assessment approach would be consistent with the present U.S. consumer product labelling, it would not implement a key element of the GHS system. Risk-based labelling would also be inconsistent with Canada's current system of labelling of hazardous products in the workplace under WHMIS.

5.3 European Union's Classification and Labelling Directives

The classification and labelling of hazardous consumer products in the European Union is governed by two directives – the Dangerous Substances Directive (67/548/EEC), and the Dangerous Preparations Directive (1999/45/EC).[74]

The current EU classification and labelling framework for dangerous substances and preparations applies not only to hazardous consumer products but covers the workplace as well. EU labelling, unlike the Canadian system, includes warnings not only for immediate hazards but also for long-term effects. For example, where a product in the EU contains a substance known to cause cancer, consumers or workers are warned on the label by the display of a hazard word and a clear, concise risk phrase. The EU framework is similar, but not identical, to the proposed GHS labelling.

Substances or preparations are classified as dangerous if they are: explosive (E), oxidizing (O), highly flammable (F), extremely flammable (F+), toxic (T), very toxic (T+), corrosive (C), harmful (Xn), irritant (Xi), and dangerous for the environment (N). Carcinogens are classified as "toxic".

Each classification is assigned a chemical hazard symbol, a hazard term, and a risk phrase. For example, products, which contain carcinogens classified by the EU as Category 1 or 2 (known and probable human carcinogens) must display the word "toxic", the symbol of a skull and crossbones, and the risk phrases:[75]

May cause cancer Or, May cause cancer by inhalation

Labels for products containing Category 3 carcinogens – suspected of causing cancer -- must display the hazard term "harmful", the symbol of the St. Andrew's cross, and the risk phrase:

Limited evidence of a carcinogenic effect

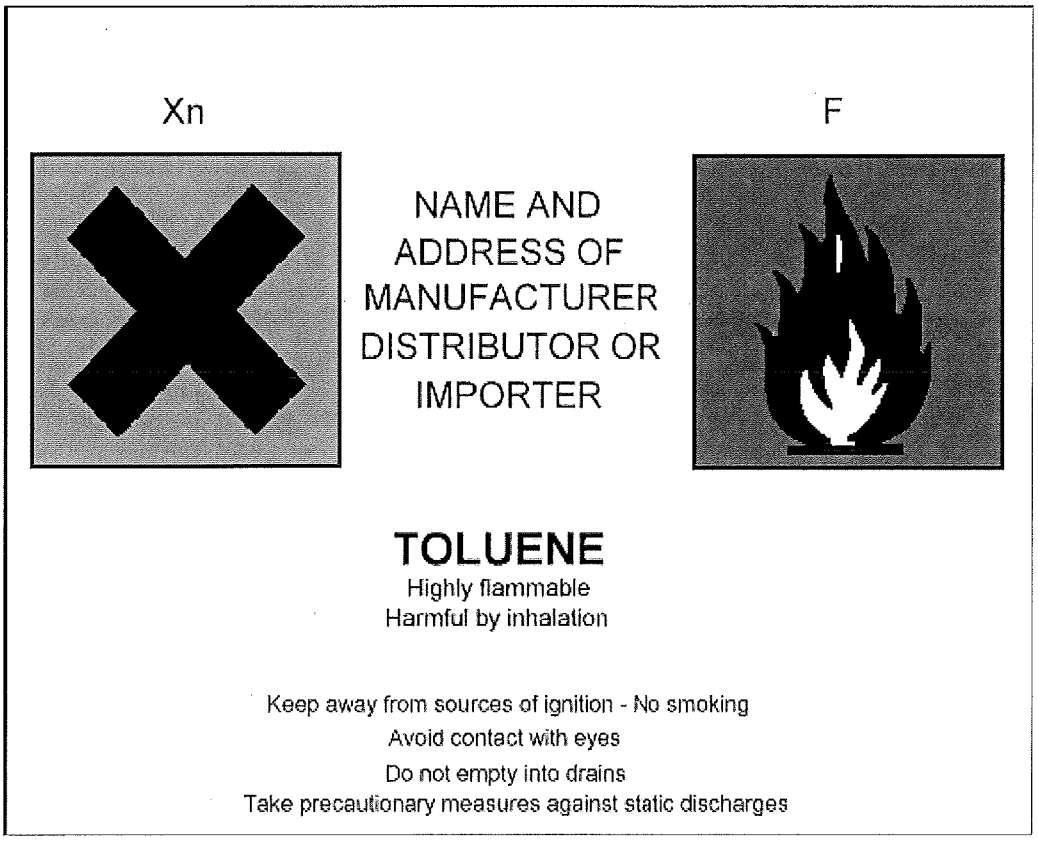
The sample label for toluene, shown below, displays the letters Xn for harmful and F for highly flammable, both characteristics of toluene, along with the appropriate symbols.[76] It also includes the corresponding risk phrases, "harmful

[74] A preparation in the European Union would be a mixture in Canada.

[75] Note that the EU classification of carcinogens is not identical to IARC's classifications. Category 1 carcinogens are known human carcinogens, and Category 2 are probable human carcinogens, as classified by the EU Health Canada, Substances Assessed for Accessible at www.hc-sc.gc.ca/ewh-semt/occup-travail/whmis-simdut/carcinogenesis-carcinogenese_e.html

[76] The Canadian Centre for Occupational Health and Safety, "Report on the Effectiveness of Label Format", prepared for the National Office of the Workplace Hazardous Materials Information System of Health Canada, March 21, 2007. This sample label was Figure 2.

for inhalation", and "highly flammable", in addition to safety precautions that should be taken.



GHS in Europe

Europe is also in the process of implementing the GHS system. A new Regulation was proposed in June 2007 that would incorporate the GHS classification and labelling system into the recently enacted European chemicals regulation, REACH. REACH -- the Registration, Evaluation and Authorization of Chemicals Regulation -- came into effect in June 2007.[77]

If adopted by the European Council and Parliament, the proposed regulation would bring the EU system of classification and labelling into line with the GHS system.[78] An analysis of the differences between the GHS system and the EU's current system of classification and labelling of substances found that they were "conceptually similar and cover the same structural elements".[79] However,

[77] Regulation (EC) No. 1907/2006.
[78] European Commission, "Proposal for a Regulation of the European Parliament and of the Council on the classification, labelling and packaging of substances and mixtures, and amending Directive 67/548/EEC and Regulation (EC) No 1907/2006".
[79] Okopol Institute for Environmental Strategies, "Final Report: Technical Assistance to the Commission on the implementation of the GHS", June 2004.

not all GHS hazard categories have been included within the EU proposal. As well, the hazard terms used in the EU would be replaced with signal words "danger" and "warning", and EU risk phrases would in some cases be replaced with new hazard phrases.

The following is an example of the way in which EU labels would be changed by the GHS.[80] The skull & crossbones pictogram with the signal word "danger" would replace the danger term "toxic". The GHS hazard statement would replace the risk phrase, R24, which is the same for acute toxicity (oral, skin and inhalation) under the EU framework and the GHS.

EU Label	**GHS Label**
	
Toxic	Danger
Toxic in contact with skin	Toxic in contact with skin

5.4 The United States Labelling of Hazardous Products

The United States position on the adoption of the GHS has not been made clear yet, and little progress has been made in comparison to Canada.

In the U.S, the Consumer Product Safety Commission (CPSC) is responsible for labelling hazardous products under the *Federal Hazardous Products Act of 1960*. In the U.S. as in Canada, the labelling for hazardous consumer products is directed at acute toxicity. Currently, some baseline labelling is required for consumer products that include the signal word "danger" for substances which are extremely flammable, corrosive, or highly toxic, and the signal words "warning" or "caution" on all other substances deemed to be hazardous.[81] Labels also require a hazard statement for the principal hazard such as "flammable", "combustible", "vapor harmful", "causes burns", or "absorbed through skin".

However, except for acutely hazardous products, the labelling of U.S. consumer products is based on a risk assessment of the likely exposure of the consumer to

[80] Health and Safety Authority, Ireland, Frequently Asked Questions: Globally Harmonized System (GHS). Accessible at http://www.hsa.ie/eng/FAQs/Chemical/Globally_Harmonised_System_GHS.html#examples

[81] 15 U.S.C. SS 1261(p), 1262, Federal Hazardous Substances Act.

the substance and the potential for harm. This means, in practice, few products containing toxic chemicals require labelling.[82]

6. Hazardous Product Labelling in the Workplace

6.1 Canada's Workplace Hazardous Materials Information System

Legislation and regulations governing the labelling of substances used in the workplace — generally known as the Workplace Hazardous Materials Information System, or WHMIS — represent the most developed system of hazardous product labelling in Canada.

The mission of WHMIS is "to prevent death, illness and injury related to workplace chemicals through the communication of relevant information".[83] After its introduction in 1988, WHMIS provided for important reductions in occupational exposure levels, and improved workplace safety programs.[84]

Under the provisions of WHMIS, workers have access to information on hazardous materials through the labelling of containers of "controlled products", through material safety data sheets, and through worker education and training programs.

The provisions of WHMIS are outlined in Part II, Controlled Products, of the federal *Hazardous Products Act* and in the Controlled Product Regulations under the Act. In addition to the federal legislation, each province and territory has established enabling legislation to incorporate WHMIS into provincial occupational health and safety legislation and regulations.

The key element in the WHMIS regulations is the concept of the "controlled product." "Controlled products" are either products containing a single hazardous substance or a mixture containing a hazardous substance. All hazardous, or "controlled products" as they are called in the legislation, must be labelled with a hazard symbol and a risk phrase which describes the main hazard of the product.

There is no list of controlled products, but any product meeting one of the 8 criteria must be labelled under WHMIS.[85] The 8 different classes of controlled products are:

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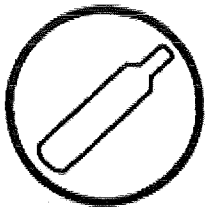
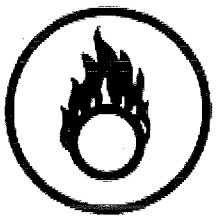
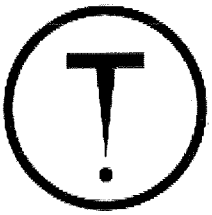
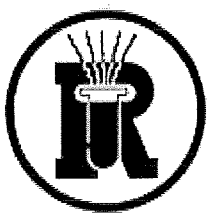
[82] Lowell Center for Sustainable Production, "Presumption of Safety: Limits of Federal Policies on Toxic Substances in Consumer Products", February 2008, p.11.
[83] Health Canada, "Environmental and Workplace Health, Application – Workplace Hazardous Materials Information System".
[84] Abbey Klugerman, National Office of WHMIS, Health Canada, "An Update on GHS Implementation Planning in WHMIS", April 8, 2008.
[85] Part IV, Controlled Products Regulations.

1) Class A: compressed gases, which may explode if heated or dropped;
2) Class B: Flammable and combustible materials, which include gases, liquids, aerosols or solids;
3) Class C: Oxidizing materials;
4) Class D: Comprises three divisions,
    1. materials with immediate and serious toxic effects;
    2. materials with other toxic effects (including chronic effects);[86] and,
    3. biohazardous infectious materials;
5) Class E: Corrosive materials;
6) Class F: Dangerously reactive materials, including those that can emit toxic gases when exposed to water.

The WHMIS symbols for the 8 classes of controlled products are shown below as they would appear on a label, with the appropriate risk phrase in the third column.[87] The label must contain at least one hazard symbol indicating the class of controlled product. In the case of a product that meets two of the criteria -- flammable and toxic, it would be identified with two hazard symbols.

	Class A - Compressed Gas	Contents under high pressure. Cylinder may explode or burst when heated, dropped or damaged.
	Class B - Flammable and Combustible Material	May catch fire when exposed to heat, spark or flame. May burst into flames.
	Class C - Oxidizing Material	May cause fire or explosion when in contact with wood, fuels or other combustible material.

[86] For each division of Class C, there is a unique label. Carcinogens are Class C, Division 2.
[87] Canadian Centre for Occupational Health and Safety, WHMIS Labelling Requirements. Accessible at www.ccohs.ca/oshanswers/legisl/msds_lab.html

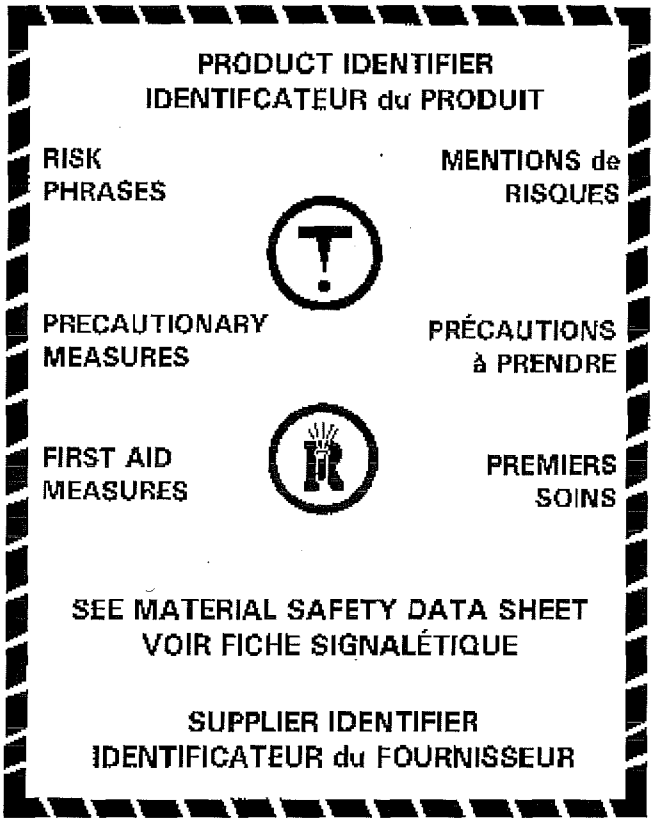
	Class D, Division 1 Poisonous and Infectious Material: Immediate and serious toxic effects	Poisonous substance. A single exposure may be fatal or cause serious or permanent damage to health.
	Class D, Division 2 Poisonous and Infectious Material: Other toxic effects	Poisonous substance. May cause irritation. Repeated exposure may cause cancer, birth defects, or other permanent damage.
	Class D, Division 3 Poisonous and Infectious Material: Biohazardous infectious materials	May cause disease or serious illness. Drastic exposures may result in death.
	Class E - Corrosive Material	Can cause burns to eyes, skin or respiratory system.
	Class F - Dangerously Reactive Material	May react violently causing explosion, fire or release of toxic gases, when exposed to light, heat, vibration or extreme temperatures.

The complete list of information that must be on WHMIS labels includes:

- Product identification;
- The hazard symbol, based on the eight classes of controlled products;
- Risk phrases associated with the hazard class;
- Precautionary statements relating to product use (such as personal protective equipment);
- First aid measures;
- Supplier identification; and,

- Reference to the availability of a MSDS.[88]

In addition, the label information must be within a hatched border in a colour that contrasts with the background.[89] The size of the label is not prescribed as it is for consumer products.



WHMIS is based on the full disclosure of hazards, including chronic hazards, such as carcinogenicity, determined by the hazardous properties of the chemical. As a result, workers have the right to know both the immediate and chronic effects of any products they may be exposed to in the workplace through standardized information labels and material safety data sheets.

The WHMIS label will be revised to comply with the GHS requirements, which will result in additional disclosure of ingredients on WHMIS labels. Ongoing discussions will determine whether all ingredients or only the main contributing ingredients responsible for the hazard classification will be listed on the label.

[88] Section 19(1), Controlled Product Regulations.
[89] Section 20(1), Controlled Product Regulations. Schedule III of the Regulations illustrates how the label should appear.

Material Safety Data Sheets

The label and the Material Safety Data Sheet (MSDS) provide the right-to-know information that is basic to the WHMIS system. The label, however, plays a secondary role in the information reporting system. The main role is played by the MSDS, which must include comprehensive information on the hazards associated with use of the controlled product. Under the *Hazardous Products Act*, no controlled product may be sold for use in a workplace in Canada unless the supplier provides to the seller an MSDS.

To be WHMIS-compliant, an MSDS must have been issued within the last three years and is required to contain 54 items of information. The information that must be reported includes:

- the WHMIS class of the product;
- a listing of hazardous ingredients and their percentage concentration in the product; and,
- the toxicological properties of any hazardous ingredients, including acute health effects as well as chronic effects of long-term exposure.

Known human health effects of both acute and chronic exposure must be reported, and there are specific categories of potential health effects that must be addressed. They are: sensitization, reproductive toxicity, mutagenicity, irritancy, carcinogenicity, teratogenicity, and synergistic effects.

In some cases, such as carcinogenicity, the Controlled Product Regulations define how the category should be reported. For example, if an ingredient in a product is listed as a Group 1 or 2 carcinogen by the International Agency for Research on Cancer, that information must be reported on the MSDS.

The Controlled Product Regulations include an Ingredient Disclosure List. This List includes more than 1,700 ingredients that must be disclosed in Material Safety Data Sheets, including the threshold for reporting each one. For most ingredients on the list, the threshold for reporting is 1% (percentage by weight in a mixture or product); for carcinogens and certain other toxic substances it is 0.1%. However, the Ingredient Disclosure List has not been updated since WHMIS was adopted in 1988.

7. California's *Safe Drinking Water and Toxic Enforcement Act*

California's *Safe Drinking Water and Toxic Enforcement Act*, better known as Proposition 65, is a unique law for alerting consumers to the presence of carcinogens or reproductive toxins in products as well as to other potential exposures from air, water, drinking water or food. Warnings may be given in a number of ways – labelling a consumer product, posting signs at a workplace or a facility, or by publishing notices in a newspaper.

Proposition 65 has been in place for more than 20 years now. It is administered by the Office of Environmental Health Hazard Assessment (OEHHA), part of the California Environmental Protection Agency. Stemming from a voter initiative in 1986 and the growing concerns of citizens about toxic chemicals, Proposition 65 requires the Governor of California to publish a list of chemicals known to cause cancer, birth defects or other reproductive hazards.[90] The list must be published at least once a year. Additions are determined by two committees of the OEHHA's Science Advisory Board.

In addition to the list, the law has two other simple requirements:

> 1) it bans the discharge of chemicals on the Governor's list into any source of drinking water; and,
>
> 2) it requires businesses operating in California to provide clear and reasonable warnings prior to exposing individuals to chemicals that cause cancer or reproductive harm (the listed chemicals).[91]

Title 22 of the California Code of Regulations, Article 6, Clear and Reasonable Warnings, sets out the way in which warning messages must be communicated. For consumer products containing a listed chemical, the label or sign displayed at the retail outlet must carry a warning such as:

WARNING: This product contains a chemical known to the State of California to cause cancer,
or,
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

However, warnings are not required if a listed chemical is below an established regulatory threshold. These limits are known as "safe harbor" numbers. Companies can still use listed chemicals in products without having to provide warnings if they can demonstrate that exposure to the amount of chemical "poses no significant risk". In order to do this, the companies must prove that the risk of cancer over a lifetime of exposure is less than 1 in 100,000 for the particular listed substance being used. More than 250 of California's listed chemicals now have safe harbor numbers. This is why very small amounts of some carcinogenic chemicals may still be present in products, such as cosmetics, without warnings.

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[90] Office of Environmental Health Hazard Assessment, "Proposition 65 in Plain Language". Accessible at www.oehha.ca.gov/prop65.html

[91] Rechtschaffen, Clifford and Patrick Williams (2005) The Continued Success of Proposition 65 in Reducing Toxic Exposures, Environmental Law Reporter, Vol. 35: 10850-10856.

One of the notable features of Proposition 65 is its enforcement provisions. The law is primarily enforced by the California Attorney General's Office. However, it can also be enforced by different agencies such as district or city attorneys where the population of the city is over 700,000, and individuals acting in the public interest, consumer advocacy groups and law firms.

Fines up to $2,500 a day for failing to provide warnings can be levied by the Courts. The fines are distributed between:

- the Hazardous Substances Account General Fund (50 per cent),
- the office of the district attorney, Attorney General, or person bringing the action (25 per cent), and,
- the local health officer to pay for enforcement activities (25 per cent).

The enforcement of this law has been the subject of considerable criticism and public discussion. Because the enforcement is carried out by the Attorney General or citizens rather than an agency such as the California Department of Health, there is no systematic application of the law, and it is enforced through lawsuits. Lawsuits may be brought against companies alleged to be violating the law, and several have led to protracted court battles and accusations that lawyers who specialize in Proposition 65 actions are profiteering.

In the magazine, Trends, published by the American Bar Association, a lawyer critical of the law, wrote, "Today even supporters admit that true benefits are few and abuses many".[92] She argues that most enforcement actions involve "unlikely" or ubiquitous exposures, and that the law does not differentiate between chemicals that are present as trace impurities and those that are intentionally used. She suggests that "most defendants settle even meritless claims", rather than face the prospect of years in court. The author also says that there is some evidence that Californians are reaching "warning saturation", and may ignore even the necessary and desirable warnings.

In answer to her criticisms, another lawyer found that the law's impact over the past twenty years had been "far-reaching and significant in scientific, health policy and legal terms".[93] He offered an analysis of the published data from the OEHHA, the California Attorney General's records and reporting in Prop 65 News, noting that Proposition 65 regulated 767 chemicals, including 494 as carcinogens, 269 as reproductive toxins, and 4 as both. In addition, standards that establish risk levels or allowable daily levels have also been set for many substances. These constitute "more chemical health risk standards for carcinogens and reproductive toxicants than virtually any other law in the world".

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[92] Brophy, Carol Rene, "Proposition 65 at 20 years", Trends 38.3 (Jan/Feb 2007), p.4 (2).
[93] Carrick, Roger Lane, "California's Proposition 65 – a blunt but powerful tool", Trends, May-June 2007, p.4 (1).

The analysis also showed that more than 2,561 Proposition 65-related lawsuits had been filed. There have been only 8 trials, which resulted in 5 defense verdicts and 3 plaintiff wins. At least 970 have been settled, most with citizen enforcers. The author estimated that more than $1 billion had been spent on product reformulations, product changes, relabelling, or warning campaigns to achieve Proposition 65 compliance.

The law has also been criticized by non-governmental organizations because warnings do not have to identify the specific chemical that gives rise to a warning. For example, a landlord could post a sign in an apartment that gives tenants "clear and reasonable" warning, but this blanket warning can cover exposures from pesticide spraying to lead in the paint or asbestos in insulation. It does not provide enough information for tenants to take precautions or avoid exposures. Similarly, products can carry general warnings that do not identify the carcinogenic ingredient in the product. This has led to consumer confusion.[94]

Despite some problems with the law, however, it remains popular in California, particularly with health and environmental activists, and is generally viewed as almost impossible to overturn.[95] To change the law would require another voter initiative, and even critics of the law recognize that Californians "take pride in leading the world in environmental protection" and would not likely agree to repeal or modify Proposition 65.[96]

8. Lessons Learned from Hazard Labelling

- Labelling of hazardous products can reduce the number of injuries and deaths that result from their use.

Labelling of hazardous products, both consumer and workplace products, has been legislated in Canada in order to reduce the number of injuries and deaths that can result from exposures to them. The identification and labelling of chronic hazards, including carcinogens, is a well-accepted practice for products in the workplace in Canada and for consumer products in the European Union. If adopted in Canada, the GHS has the potential to further reduce disease and death.

Labelling on tobacco packaging was also introduced to reduce the number of tobacco-related deaths and disease, and reduce the substantial economic costs of tobacco use.

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[94] Personal communication with Sharon Muraoka, California Director of Policy and Government Relations, American Cancer Society, April 21, 2008.
[95] Personal Communication with Gretchen Lee, Breast Cancer Fund, California.
[96] Brophy, Carol Rene, "Proposition 65 at 20 years", Trends 38.3 (Jan/Feb 2007): p4 (2).

- Pictorial warnings are more effective in communicating health risks than text messages.

Canada was one of the first countries to introduce graphic cigarette warnings, and has now become a model for other countries. The vivid graphic warnings are more noticeable, more likely to be discussed than text warnings, and more associated with smoking cessation. They are also better for reaching children and people with low literacy skills. Concerns were raised before their introduction that the vivid graphics would cause unnecessary emotional distress, or that smokers would avoid or react negatively to them. However, research shows that smokers regard the government-mandated cigarette warnings as a credible source of health information.[97]

- Hazard labelling can influence behaviour and discourage use of products damaging to health.

Studies of smokers in Ontario showed that smokers who recalled warning modified their smoking habits – either by stopping, trying to stop or reducing their smoking. Similarly in California, information has enabled people to avoid exposures to carcinogens and reproductive toxins which have not been federally regulated. The use of alcoholic beverages during pregnancy is one example of awareness that has increased as a result of Proposition 65 warnings.[98]

Another example is mercury in fish. Highly visible warnings about the possible dangers of fish consumption during pregnancy have also resulted from Proposition 65 warnings. Although the Food and Drug Administration issued advisories telling women not to eat certain fish because of the high mercury levels, the information was not provided to pregnant women at the point of sale – in grocery stores or restaurants.[99] After the California Attorney General initiated lawsuits against major grocery chains for failure to warn about mercury exposure in fish, grocery stores in California posted signs near fresh and frozen seafood sections warning customers that certain types of fish contain mercury, a listed reproductive toxin.

- The public strongly supports hazard warnings.

Focus groups done to review the effectiveness of tobacco labelling in Canada show public support for hazard warnings on tobacco products, even among smokers.

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[97] Hammond, David, Geoffrey T Fong, Paul W McDonald, Stephen Brown, Roy Cameron (2004) Graphic Canadian Cigarette Warning Labels and Adverse Outcomes: Evidence from Canadian Smokers, American Journal of Public Health. Vol. 97: 8, p. 1442-1445.

[98] Office of Environmental Health Hazard Assessment, "Proposition 65 in Plain Language", February 2003.

[99] Rechtschaffen, Clifford and Patrick Williams (2005) The Continued Success of Proposition 65 in Reducing Toxic Exposures, Environmental Law Reporter, Vol. 35: 10850-10856.

- Labels that warn people of the hazardous properties of a product lose their effectiveness over time and need to be refreshed.

Health Canada has proposed that warnings on tobacco packaging be changed every two years so that people do not become accustomed to the messages and begin to ignore them. Research on U.S. tobacco labelling shows that messages that have been in place over several years appear to have lost their effectiveness.

- Labelling promotes the reduction or elimination of toxic substances from products.

One of the most important effects of Proposition 65 has been the reduction or elimination of carcinogens or reproductive toxins from consumer products by manufacturers or producers wishing to avoid warning labels. [100] For example, after its introduction, makers of fine china cut the amount of lead leaching from their glazes by half.[101] Major plumbing supply manufacturers agreed to produce brass faucets that were virtually lead-free, and a national brand of car wax and carburetor cleaner was reformulated to eliminate carcinogens.[102]

More recently, a number of cases have been settled against companies using lead in the manufacture of polyvinyl chloride products, such as hand tools and exercise weights, plastic raincoats and children's bicycle handlebars. More than 300 companies have been involved, and in the 75% of the cases that have been settled, generally products have been reformulated to reduce the lead content in the product significantly. In a few cases, companies agreed to give warnings.[103] Dandruff shampoos have also been reformulated to eliminate coal tar as a result of actions filed by the California Attorney General and a private enforcer.

- Labels or warnings should be clear about identifying the toxic substance or the carcinogen for which the warning is issued.

There has been criticism in California of the generality of the warnings that indicate a product contains a substance that may cause cancer, where the particular substance is not identified. This has led to confusion and scepticism about the warnings.

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[100] Randolph Smith, Wall Street Journal, "California Spurs Reformulated Products", Thursday, November 1, 1990. See also Note 102.

[101] Clifford Rechtschaffen, "How to Reduce Lead Exposures With One Simple Statute: The Experience of Proposition 65", Environmental Law Reports 29, 10581-10591, documents the significant reductions of lead in calcium supplements, brass kitchen faucets, water well pumps, ceramics, hair dyes, wine capsules and factory emissions in response to Proposition 65.

[102] Mary Graham, "Regulation by Shaming", The Atlantic Monthly, April 2000, p.36

[103] Reschtschaffen, Clifford & Patrick Williams (2005) The Continued Success of Proposition 65 in Reducing Toxic Exposures, Environmental Law Reporter 35: 10850-10856.

Similarly, emissions statements on tobacco products were found in focus groups to be confusing. Research into statements of toxic emissions on tobacco packages show that descriptive information on the health impacts of harmful ingredients are more important than quantities in terms of consumer understanding. Those involved in the surveys indicated that they would prefer a clearer statement about the presence of a particular substance and its health effects.

IV. Preferred Product Labelling Systems

Preferred product labelling is another way of influencing people's choices, and encouraging manufacturers to improve their products.

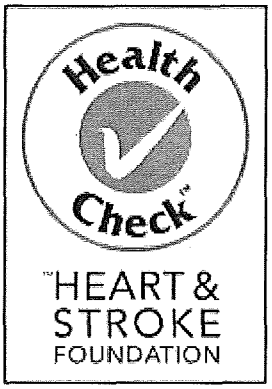
As the interest in health and environment grows, governments and independent third-party groups have established certification programs to guide consumers to preferable products. In contrast to warnings, labels display logos that indicate the product has met certain health or environmental criteria.

The preferred product labelling systems discussed in this section are, first, the Health Check program of the Heart & Stroke Foundation, which helps consumers identify foods based on health criteria. The second type is the ecologo, which identifies products with a lower environmental impact. Two examples are the Environmental Choice program in Canada, and the European Union's Ecologo.

9. Health Check

Health Check is a 10 year old labelling program administered by the Canadian Heart & Stroke Foundation. It is a recognized model of preferred product labelling, used not only in Canada but in the United States, Australia and New Zealand. Introduced in Canada in 1999 before nutrition labelling became mandatory, it is the only non-governmental food information program in the country.

Approved products display a logo with a check mark inside a circle anywhere on the package, and a short statement on the side or back panel that explains why the product is part of a healthy diet.[104] The logo must be presented as it is shown, and the height should not be less than one inch. The placement on the package is up to the manufacturer.[105]



[104] Heart & Stroke Foundation, Packaging Information. Accessible at www.healthcheck.org
[105] Personal Communication with Carol Dombrow, Health Check, August 28, 2008.

The purpose of the Health Check program is to help people identify foods that meet specific nutrition criteria.[106] Nutrition criteria are based on Canada's Food Guide and Health Canada's health claims. The program is operated on a not-for-profit cost-recovery basis from fees paid by companies whose products are evaluated and approved under the Health Check program. In 2007, there were 1500 products bearing the Health Check logo on the market out of about 20,000 products available in the stores.

The program is intended to promote healthy eating and reduce incidence of all chronic disease, not just heart and stroke. The Heart &Stroke Foundation's strategy is to try to create an understanding of the concept, build awareness of the logo over several years, and change the behaviour of both consumers and food manufacturers.

Surveys generally indicate that people are in favour of food information programs. In an early survey conducted for the Heart and Stroke Foundation, 88% of people interviewed found the Health Check logo was useful. [107] The credibility was generally improved by the endorsement of the Heart & Stroke Foundation, which is a recognized health association. However, the credibility ratings dropped when participants learned that food manufacturers paid for the endorsement.[108]

No evaluation of the impact of the Health Check program has been carried out in Canada, although the Heart & Stroke Foundation plans to do this in the future.[109] Currently, the only link documented by the Heart & Stroke Foundation is that for 73% of Canadians recently surveyed the awareness of Health Check products was linked with sales.[110]

Studies in other countries, however, have shown that the Health Check program has led to an improvement in food products. Australia's popular Pick the Tick program, on which Health Check was modelled, was also adopted in New Zealand. A New Zealand study of the impact of Pick the Tick on food companies found that over a one year period, from July 1998 to June 1999, companies had reduced the amount of salt in their food products by 33 tonnes through the reformulation of breads, breakfast cereals and margarines.[111]

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[106] Smith, Shannon C., Alison Stephen, Carol Dombrow and Doug MacQuarrie (2002) Food Information Programs: A Review of the Literature, Canadian Journal of Dietetic Practice and Research, 63 (2): 55-60.
[107] Ibid. p. 57.
[108] Op. cit. p. 57.
[109] Personal Communication with Terry Dean, Director, Health Check Program, March 6, 2008.
[110] Personal communication with Terry Dean, unpublished survey done for Health Check.
[111] Young, Leanne & Boyd Swinburn (2002) Impact of the Pick the Tick food information programme on the salt content of food in New Zealand, Health Promotion International, 17(1): 13-19.

Similarly, an Australian study found that one breakfast cereal company reduced salt levels in their products to meet Pick the Tick targets, and concluded that the effects of Pick the Tick extended to products beyond those in the program.[112] In Canada, the Health Check program has also influenced companies, such as Campbell's Soup, to reformulate their products and reduce salt levels.[113]

A 2002 article written by the Canadian Heart & Stroke Foundation and Cantox, reviewed the published literature and examined the criticisms of food information programs.

In response to the criticism that food information programs oversimplify the concept of healthy eating, the review found that the majority of people understood food information program labels and interpreted the logos correctly. For example, people did not assume that labelled foods were "good" and unlabelled foods "bad". Also, people generally did not believe that these foods could be eaten in unlimited quantities.

However, for some other criticisms of food information programs, there was not enough research to draw conclusions about their validity. The other criticisms were:

- there is not enough scientific evidence to support the nutritional criteria;
- eligible foods are not part of the program because of voluntary participation;
- licensing fees prevent small companies from participating;
- accepting money from food companies compromises the credibility of the administering organization; and,
- the influence of the program is limited to food purchases and does not have on impact on preparation or intake.[114]

Concerns similar to these have been raised in Canada with respect to Health Check. Government changes to the nutritional criteria, for example, resulted in problems for the Health Check program. When Health Canada revised Canada's Food Guide in January 2008, many foods displaying the Health Check logo no longer met the nutrition criteria. Health Check has given participating companies two years to make changes in their products to meet the more rigorous criteria.

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[112] Williams, Peter, Anne McMahon & Rebecca Boustead (2003) A case study of sodium reduction in breakfast cereals and the impact of the Pick the Tick food information program in Australia, Health Promotion International, 18 (1): 51-56.

[113] Heart & Stroke Foundation, Health Check: Frequently Asked Questions. Accessible at www.healthcheck.org

[114] Op cit.

[114] Smith, Shannon C., Alison Stephen, Carol Dombrow and Doug MacQuarrie (2002) Food Information Programs: A Review of the Literature, Canadian Journal of Dietetic Practice and Research, 63 (2): p. 57.

In January 2008, the nationally televised CBC show, Marketplace, criticized the Health Check program because many foods bearing the Health Check logo contained high levels of sugar.[115] Health Check was unfavourably compared with two other ratings systems in the United States. Because Canada's Food Guide did not set nutritional criteria for sugar or recommend limiting sugar intake until recently, the Health Check program also did not have criteria for sugar until the Food Guide was revised.[116]

Similarly, an article in the Canadian Medical Association Journal discussed high levels of sugar and salt in approved Health Check products. Follow-up letters to the Journal criticized the program for weak nutrition criteria and for endorsing products that are "only relatively nutritious among non-nutritious products in the same category".[117]

10. Ecolabelling

Ecolabels create an incentive for manufacturers to develop "greener" products, and help direct consumers and professional purchasers towards more environmentally sound purchasing. Ecolabels generally designate products that consume less energy, pollute less or create less waste than other products in the same use category.[118]

They are often awarded by impartial third-party groups that set criteria for products and services that must be met before the logo is approved for use. For manufacturers and retailers, ecologos are intended to give added value to a product and demonstrate the company's commitment to the environment.

10.1 Canada's Environmental Choice

The Environmental Choice Program in Canada was established in 1988 by Environment Canada, but transferred in 1995 to an independent certifying body, TerraChoice Environmental Services, in Ottawa.[119] The purpose of the Environmental Choice program is to use market forces for behavioural change and environmental benefits.

The Environmental Choice program assesses products against established criteria, verifies company claims and approves the use of the Environmental Choice logo so that companies, which have developed more environmentally-

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[115] CBC Marketplace, "Hyping Health", January 23, 2008. Accessible at www.cbc.ca/marketplace/hyping_health/

[116] Heart & Stroke Foundation, Health Check: Frequently Asked Questions.

[117] Bill Jeffery, National Coordinator, Centre for Science in the Public Interest, Letter to the Canadian Medical Association Journal, February 26, 2008.

[118] Information on the eco-labels of many countries is accessible through the website of the Global Ecolabelling Network at www.gen.gr.jp/

[119] Environmental Choice Program Certification Overview. Accessible at: www.ecologo.org/

friendly products, can turn their investments into a market advantage. The criteria for categories of products are established by TerraChoice through a Panel Review process. The Panel includes representatives from industry, government, universities, consumer and environmental groups.

The Environmental Choice logo is represented by three doves intertwined to outline a maple leaf. Approved products display the logo and a criteria statement which clarifies why the product was certified. There is no standard size for the ecologo but the guidelines require that it be in "good proportion to the rest of the material on the collateral or label" and not overwhelm it, that it be legible in all sizes and that it be surrounded by a buffer zone. No embellishments, alterations or additions are to be used.[120]

Like other certification systems, TerraChoice requires manufacturers to submit their products for certification and pay a fee for the service. In addition, companies also pay annual licence fees based on the sales of the product. In some sectors, a majority of companies will apply for certification in order to qualify their products and benefit from strict institutional procurement policies. More than 7,000 products are part of the Environmental Choice program. However, the use of the Environmental Choice logo for products marketed to consumers has been considerably less than its use by governments and institutions.

Criteria for many Environmental Choice products include prohibitions on the use of certain toxic substances. One important criterion is that approved products contain *no* IARC-listed carcinogens. For example, the criteria for hard surface cleaners require that they "not be formulated or manufactured with any chemicals that are included in the IARC lists for proven, probable, or possible carcinogens".[121]

An example of a criteria statement is:

[120] TerraChoice, "Guide to Proper Use of the Ecologo".
[121] Environmental Choice Program, Certification Criteria Document CCD-146, Product: Hard Surface Cleaners, Prohibited and restricted components, Section 6(g).

Cleaning Product with Low Potential for Environmental Illness and Endocrine Disruption

There is little research on the impact of ecologos on purchasing behaviour. However, a comprehensive survey of the attitudes and practices of North American buyers towards environmental purchasing was done in 2006 and 2007 by TerraChoice in collaboration with other groups.[122] The survey, Ecomarkets 2007, supported by the North American Commission for Environmental Cooperation, found that there is considerable interest among the public, corporations and institutions in the environment and sustainability, and found that the large market for environmental products is growing.

The survey also showed:

- 70% of respondents said that their organization had instituted either a formal or informal environmental policy – a 6% increase from 2006;
- in Canada 76% of government departments or agencies have green purchasing policies;
- for approximately 60% of organizations in Canada and the United States, up to 40% of annual spending is actually influenced by environmental factors;
- a strong majority of respondents would *not* pay a premium for environmentally preferred products;
- of all the environmental issues, those related to human health and toxics were ranked as the most important by procurement professionals; and,
- the most important factors necessary to advance green purchasing are better information, better selection and price.

In 2008, TerraChoice plans to focus on raising consumer awareness of the Environmental Choice logo. Although they have not studied the consumer market for ecolabelled products in Canada, TerraChoice reports that Environmental Choice-approved products are now being offered by major retailers such as Loblaws and Home Depot.

In the United States, Green Seal is the most recognized non-profit third-party certification and ecolabelling program. Its program and its goals are similar to Environmental Choice, and both are cooperating to enable companies to receive certification through a single process.

With the current interest in environmental issues, many companies are using environmental claims to promote their products. TerraChoice did a study of such claims, "The Six Sins of Greenwashing", which identified trends in

[122] TerraChoice Environmental Marketing, Ecomarkets 2007: Summary Report.

exaggerated or false advertising of products. In recognition of this problem, Canada's Competition Bureau has just introduced voluntary guidelines for companies to protect consumers from false advertising. However, some critics believe that environmental claims on labels should be subject to mandated government standards similar to those in place for food labels.[123]

10.2 European Union Ecolabel

Many European countries, such as Germany, Sweden and the Nordic countries, have their own well-established ecolabels. Germany has the Blue Angel label, the Nordic countries' the Swan and the Swedish Society for Nature Conservation has the Good Environmental Choice label. However, the European Union's ecolabel – the Flower – is the one that is used throughout Europe, and is the one that will be discussed here.

Although it is a voluntary program, the EU ecolabel was established by the Ecolabel Regulation (EC) 1980/2000, which originally came into force in 1992. The Regulation sets the criteria for the use of the Ecolabel flower logo on products and in advertising. In 2000, the regulation was revised and the ecolabel was extended to cover services as well as products. It currently covers 24 product groups, including tourist accommodation and campsites.[124] Its purpose is to "provide guidance to consumers on products with a potential for reducing environmental impact..." [125]

The logo, displayed on approved products, is a flower whose petals are formed by the star symbol used by the EU.

[123] The Globe and Mail, "New green labelling rules too lax, critics say", June 26, 2008.
[124] European Commission, Report on the Public Consultation: Revision of the EU Ecolabel Regulation (EC) No 1980/2000.
[125] Regulation (EC) no 1980/2000 of the European Parliament and of the Council of 17 July 20000 on a revised Community eco-label award scheme.

It is administered by the European Eco-Labelling Board (EUEB), supported by the European Commission. The Board includes representatives from member states, industry, unions, environmental groups and consumer organizations. The EUEB sets and reviews ecolabel criteria for product groups, working with the Commission. The EUEB is also responsible for the assessment and verification of products.

The Ecolabel is directed at consumers, and identifies approved products that have a reduced impact on the environment compared to other products marketed for the same purposes. Although the focus of most ecolabels is primarily to reduce environmental impacts rather than to improve health, labelling criteria usually include limits on hazardous substances used in the product.

To use the Ecolabel, a company submits its application for product approval to the member state in which the product originates.[126] If the product is approved, companies pay an initial fee and an annual licence fee based on the value of sales of the approved product. Criteria are valid for a period of 3 years.

A review of the 2000 EU Ecolabel Regulation is currently underway. The European Commission is planning major changes to complement the EU's broader action plans on sustainable industrial and consumption policies.

As part of the review process, an evaluation of the Ecolabel was conducted in 2005. It found that "in general...systematic assessments of the market impact of ecolabelled products are not available".[127]

However, some of the benefits of the most successful ecolabels such as the Swan and the Good Environmental Choice have been calculated. It has been estimated, for example, that the Good Environmental Choice and Swan labels have considerably reduced chlorinated compounds and other pollutants from the Swedish forest industry through the purchase of ecolabelled paper products.[128] They have also been credited with reducing the volume and toxicity of household chemicals, particularly laundry detergents.

The Ecolabel review process included a literature survey, interviews and an online public consultation. This review identified positive aspects of the Ecolabel, such as:

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[126] Article 7.3.

[127] EVER: Evaluation of EMAS and Eco-Label for their Revision, "Report 2: Research Findings", December 26, 2005 (citing Rubik and Frankel 2005).

[128] Dietz, Thomas and Paul C. Stern, Editors, New Tools for Environmental Protection: Education, Information and Voluntary Measures, National Academy Press, Washington, D.C., 2002, p. 87-88. Accessible at www.books.nap.edu

- The Ecolabel had contributed to setting targets for better environmental product performance;
- It has influenced the demand for suppliers to meet high environmental standards;
- Participating companies use the Ecolabel in their marketing campaigns; and,
- Neither users nor non-users of the Ecolabel want to see it abolished.[129]

On the other hand, the survey also identified problems with the Ecologo:

- There was still low awareness and uneven geographic take-up of the label;
- There were insufficient product group categories;
- It suffered from cumbersome procedures and organizational structures;
- The fees and cost of getting the label were perceived as barriers; and,
- There was a lack of perceived public purchasing benefits.

The public consultation found that there was continuing strong support for labelling products that are less environmentally harmful, and that the majority supported an independent 'third' party verification of the Ecolabel.

As with Health Check, the Ecolabel has also been criticized by groups concerned about the criteria used to determine which products are approved. The European Environmental Bureau (EEB), Europe's largest federation of environment and citizens' groups, opposes the most recent proposals of the European Commission to approve specific product groups.[130]

The European Commission's criteria for 5 product groups, including textiles, bed mattresses and furniture, would allow flame retardants and pesticides in textiles and mattresses, and polyvinyl chloride in wooden furniture. The EEB is concerned that the European Commission is weakening the criteria for the Ecolabel by accepting products that meet, but do not exceed, current regulations.

11. Single Issue Preferred Product Labelling

In addition to ecologos, there are many other single-issue preferred product labels that direct consumers to products with higher health or environmental standards.

One example is the international Forest Stewardship Council, which has been in place since 1993 and is designed to promote sustainable forestry. Forest

[129] European Commission, Report on the Public Consultation: Revision of the EU Ecolabel Regulation (EC) No 1980/2000, p.3.
[130] Media Release, "European Ecolabel in Danger of Weakening", European Environmental Bureau, Brussels, April 22, 2008.

products bearing its logo (a tree that is also a check mark) or its name, have been approved by the Council and certify that they have been created in "an environmentally responsible, socially beneficial and economically viable way".[131] Companies like Kinko's use this certification as part of their environmental marketing.

Many of the newest labelling systems are designed to reduce carbon emissions to the atmosphere. Japan, for example, has announced its plans to introduce carbon footprint labelling for food and consumer products.[132]Another example is the United Kingdom's Low Carbon Vehicle Partnership, under which the auto industry will voluntarily introduce a consumer-friendly fuel economy label starting in 2006.

Although these labelling schemes are also of interest, it is beyond the reach of this discussion to describe all of them. However, the most common ones are briefly outlined in Appendix I.

12. Lessons Learned from Preferred Product Labelling

- Consumers and professional buyers support preferred product labelling as a way of identifying products with a better environmental and health profile.

Although there is little documentation to show the impact of preferred product labelling on public health or the environment, surveys show that people support these programs.[133] Surveys done for Health Check and by TerraChoice show that there is public support and interest in preferred product labelling. Similarly, the European Union's review of The Flower found that more than 60 per cent of respondents supported ecolabelling.

- The credibility of preferred product labelling depends on a valid third-party certification process and publicly available criteria.

Companies have used environmental and health claims, which are false or misleading, to promote products. This can mislead well-intentioned consumers and lead to cynicism. It can also eliminate market-based financial incentives for product innovation.[134] Health Check logos and ecolabels, certified by qualified and independent third-parties, on the other hand, serve to direct consumers to products that do meet publicly available criteria.

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[131] Forestry Stewardship Council, "What is FSC-US". Accessible at www.fscus.org/faqs/what_is_fsc.php

[132] The Guardian, "Japan to launch carbon footprint labelling scheme", August 20, 2008.

[133] Smith, Shannon C. et al (2002) Food Information Programs: A Review of the Literature, Canadian Journal of Dietetic Practice and Research, 63:2, p.59.

[134] TerraChoice Environmental Marketing, "The Six Sins of Greenwashing: A Study of environmental Claims in North American Consumer Markets", November 2007.

- Preferred product labelling can help to raise health and environmental standards.

As a result of companies wanting to cooperate with the Health Check program, food products have been reformulated in Australia, New Zealand and Canada to reduce the levels of salt. Significant reductions in the salt content of popular packaged foods can have population-wide effects on blood pressure levels, and lead to a lower incidence of stroke and heart disease.[135]

Ecolabel programs also establish strict environmental and health criteria for products. TerraChoice has found that many companies develop products to meet strict environmental criteria and become eligible for environmentally preferred purchasing programs.

In Europe, ecolabels have resulted in significant reductions in pollution related to household products. In Sweden in 1996, 60% of the chemical ingredients used in soap, shampoo, detergents and cleaners had been replaced with less harmful substances.[136] In 1997, ecolabelled detergents had a market share of more than 90% in Sweden. In Germany, the Blue Angel label was credited with reducing the amount of solvents emitted from pain and varnishes into the environment by 40,000 tonnes.[137]

- Preferred product labelling is more credible when it is based on criteria that exceed government regulation or guidelines.

There has been criticism of both the Health Check criteria and recent proposals by the European Commission to use government-approved standards or guidelines as the basis of preferred product labelling. In this case, companies that meet government standards or guidelines may have their products certified although they are not necessarily the highest performing products. This approach makes it difficult for consumers to identify the products with the best health and environmental profiles.

- Voluntary programs may leave out smaller companies and other companies that may have superior products but do not choose to apply for certification.

If companies do not apply for certification of their products, consumers may not be directed to superior products offered by these companies. Many healthier products in the same food groups may not have a Health Check logo because the companies have not elected to apply for the approval. Similarly, many

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[135] Stamler, R. (1991) Implications of the Intersalt Study, Hypertension 17 (S1): 16-20.
[136] Dietz, Thomas and Paul C. Stern, Editors, New Tools for Environmental Protection: Education, Information and Voluntary Measures, National Academy Press, Washington, D.C., 2002, p. 87-88. Accessible at www.books.nap.edu
[137] Ibid.

products with environmental benefits may be overlooked by consumers because companies have not applied for logos.

- The public is more sceptical about preferred product labels when they know companies are paying to display the logo.

Although the Heart & Stroke Foundation accepts money from food companies only for the costs of running the Health Check program, its own research found that consumers find the endorsements less credible when they learn that food companies pay a fee to participate in the program.

V. Conclusion

Labelling provides multiple opportunities for informing people at the point of purchase about the products they are buying. Labels can simply state the contents of the product; they can warn people of the presence of particular carcinogens or other toxic substances in products; or, they can indicate that a product is free of chemicals of concern.

The public generally support all forms of right to know labelling systems. In addition, this review shows that all types of labelling systems have the potential to raise health and environmental standards, to promote public health goals and to reduce the costs of injuries, disease and deaths.

Appendix I – Environmental Accreditations and Logos

United Kingdom Green Procurement Guide (June 2006)

ISO 14001

ISO 14001 - A supplier operating an environmental management system may seek certification to ISO 14001. This standard specifies the requirements for an environmental management system in terms of an organisation's environmental commitment to a policy, compliance with applicable legislation and regulations and to continual improvement in its overall performance. For more information see Web site: http://www.iso14000.com

EMAS (The EU Eco-Management and Audit Scheme) is a management tool for companies and other organisations to evaluate, report and improve their environmental performance. EMAS was strengthened by the integration of EN/ISO 14001 as the environmental management system required by EMAS. Organisations certified to EMAS have to publish an externally verified Environmental Report. For more information see: www.emas.org.uk

PEFC (Programme for the Endorsement of Forest Certification schemes) is an independent organisation whose label certifies wood has been independently audited as coming from sustainably managed forests. For more information see Web site: www.pefc.org

The Forest Stewardship Council evaluates, accredits and monitors certification organisations which inspect forest operations and grant labels certifying that timber has been produced from well managed forests. Once certified, timber and timber-based products originating from that forest or woodland are eligible to carry the FSC Trademark. For additional information, check out their Web site: http://www.fsc-uk.demon.co.uk/index.html

The Nordic Swan - The Swan logo demonstrates that a product is a good environmental choice. The green symbol is available for around 60 product groups for which it is felt that ecolabelling is needed and will be beneficial. These days, everything from washing-up liquid to furniture and hotels can carry the Swan label. For more information on the Nordic Swan go to - http://www.svanen.nu/Eng.com

The Rainforest Alliance works with foresters, farmers and tour operators to ensure that their goods and services are environmentally and socially responsible. For additional information, check out their Web site: www.rainforest-alliance.org

Ecolabel - This is an official Europe-wide award for non-food products that minimise impacts on the environment. Products must be independently certified and have to meet strict criteria for all the main environmental impacts across their whole life cycle. DEFRA runs the scheme in the UK where products with the flower include kitchen rolls, toilet tissue, paints and clothing. For additional information, check out their Website: www.europa.eu.int/ecolabel

VOC Content - These labels indicate the relative content of VOCs (Volatile Organic Compounds) in paints and associated products. VOCs cause air pollution and may be harmful to human health. The industry and retailers have agreed wording and standards for the use of this voluntary label. More information is available from the British Coatings Federation. There is no standard logo, but many retailers have adopted the form of logo shown here, which was developed by B&Q. For more information check out the Website: www.coatings.org.uk

Blue Angel – This standard is for digital multi-function devices. To obtain the Blue Angel strict standards for hazardous substances, emissions, waste minimisation, energy efficiency during usage and the utilisation of used products have to be met. Machines are tested in a controlled climate where criteria such as dust / ozone / styrene and noise levels are tested to ensure they do not exceed set limits. For more information on the Blue Angel go to - http://www.blauer-engel.de/willkommen/willkommen.htm

NAPM Recycled Mark - This mark is awarded to those papers which contain a minimum of 75% genuine waste. Genuine waste is defined as: Converters' waste - paper which has left the mill and has become waste during a converting process such as cutting or slitting to meet a specific commercial order. Printers' waste - printed or unprinted waste collected from a printing operation (trimmings, overs or rejects). Domestic or Office waste - collected from homes and offices, printed or unprinted.

The Mobius Loop simply means that a product or part of it can be recycled where facilities are available. The inclusion of a figure shows the percentage of recycled material that has been used to make the product. For more information visit the website: www.biffa.co.uk/getrecycling/symbols.php

The Energy Star logo means that the energy consumption of the appliance is below an agreed level in stand-by mode. The logo appears on some types of office equipment, such as computers, monitors, printers and fax machines. Within the EU, the Energy Star is a voluntary labelling scheme and its use is controlled by an agreement between the USA and European Community. For more information see Web site : www.energystar.gov

The energy saving logo endorses products that are amongst the most energy efficient available, the scheme is managed by the energy saving trust. The wide range of products covered includes appliances like washing machines and refrigeration, light fittings, gas and oil boilers, insulation, hot water cylinders and glazing. There is a good online product database. For more information see Web site : www.est.org.uk/recommended

Energy Efficiency - All European manufacturers and retailers must tell you about the energy efficiency of electrical household appliances such as freezers, washing machines, tumble dryers, washer-dryers, dishwashers, air conditioners, ovens and light bulbs. Products are generally rated from 'A' to 'G' with 'A' being the most efficient ('A'+ and 'A++' for the most efficient fridges and freezers). For more information see Web Site:
www.defra.gov.uk/environment/consunerprod/mtp

Fuel Economy – There is a similar label that shows how much carbon dioxide a car emits. The label also gives estimated fuel costs for 12,000 miles and the vehicle excise duty for 12 months so you can see how much these will cost before you buy. Lower carbon dioxide emissions mean lower road tax and lower running costs. For more information see:
www.admin.cam.ac.uk/offices/environment/guidance/vehicle.html

Appendix II – Designing Hazardous Warning Labels

Although this report has focussed on discussing recognized labelling systems, other information in the published literature came to light in the course of researching this report that may be useful to the Committee in understanding the impact of the actual design of a hazard label. Examples include:

- Research at the University of Idaho looked at the way signal words and colours interact on warning labels.[138] The study found that the level of hazard varied as a function of the signal word and the colour in which it was presented. Red conveyed the highest level of perceived hazard followed by orange, black, green and blue. Signal words such as "deadly" were perceived to be less of a hazard when printed in green rather than red ink. Furthermore, test subjects were more likely to follow directions in a warning statement printed in red than in green and black.

- Experimental research at North Carolina State University was done on warnings, signal words and a signal icon on the perceived hazard of consumer products.[139] The study found that the presence of a signal word increased the perceived product hazard. Without the signal words, the product was perceived to be less hazardous. Significant differences were noted between extreme terms used as signal words, such as "note" and "danger", but not between terms usually recommended for warnings such as "caution" and "warning". Also, the signal icon showed no significant effect on hazard perception.

- Another study done at North Carolina on alternative product-label design and compliance with warnings, found that, for small containers, a tag design produced significantly greater compliance with warning instructions than a wing design or conventional small print warnings.[140]

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[138] Braun, CC & NC Silver (1995) Interaction of signal word and colour on warning labels: differences in perceived hazard and behavioural compliance, Ergonomics 38 (11): 2207-20.
[139] Wogalter, MS, SW Jarrard & SN Simpson (1994) Influencing of warning label signal words on perceived hazard level, Human Factors 36 (3): 547-56.
[140] Wogalter, MS & SL Young (1994) The effect of alternative product-label design on warning compliance, Applied Ergonomics 25 (1): 53-57.

Appendix III - Key Informants

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Appendix IV – Data Sources

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