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Bottled water – Do you know what you’re drinking?

Canadian consumers drank 60 litres of bottled water per person in 2005, more than double than in 1999.¹ But do you know what you are drinking? What is actually in bottled water? And can you tell from the label?

Labelling

Many people buy bottled water, believing that it is safer than tap water. In fact, the major difference between bottled water and municipal tap water is that we know *less* about what is in bottled water. In the US, an Environmental Working Group (EWG) investigation of almost 200 popular bottled water brands found less than 2 percent disclose the water’s source, how the water has been purified and what chemical pollutants each bottle of water may contain. Just 2 of the 188 individual brands EWG analyzed disclosed those three basic facts about their water. See *Most Bottled Water Brands Don’t Disclose Information About Source, Purity and Contaminants*, <http://www.ewg.org/health/report/bottledwater-scorecard/news-release> and <http://www.loe.org/shows/shows.htm?programID=09-P13-00028> .

The same is likely true in Canada.

Municipal water is subject to frequent and detailed testing, and the source of the water is public. In most provinces, test results for municipal water are easily accessible to the public. Edmonton, for example, publishes daily, monthly and

¹ CBC news – Bottled Water – August 20, 2008 at <http://www.cbc.ca/news/background/consumers/bottled-water.html>

annual water quality reports, including details on dozens of parameters from bacteria to lead: <http://www.epcor.ca/en-ca/Customers/water-customers/water-quality-reports/Pages/default.aspx> . Most provincial water quality standards, such as Ontario's Drinking Water Quality Standards regulation² under the *Safe Drinking Water Act, 2002* (SDWA), set maximum limits for microbiological, chemical and radiological parameters for all drinking water in the province. But these rules don't apply to bottled water.

Bottled water is regulated, much less tightly, under the federal *Consumer Packaging and Labelling Act* and Regulations. The source of the water need not be disclosed, unless it is labelled as "spring" or "mineral" water. (Many bottled waters are actually tap water. For example, Dasani (owned by Coca-Cola) is filtered municipal tap water, bottled in Brampton, Ont., and Calgary. Pepsi's Aquafina, is essentially the same. Both companies pay less for municipal water, by the way, than consumers do.)

The bottle label need only include:

- Common name (e.g., "water")
- List of ingredients, if more than one
- Net quantity
- Name, address of responsible company
- Fluoride content
- For all bottled waters, except spring or mineral water: description of any treatment the water has received (e.g., chlorination, filtration)
- For spring or mineral water: dissolved mineral salt content, statement as to whether ozone or fluoride has been added, and geographic location of underground water source.

Thus, bottled water in most of Canada may contain undisclosed levels of many health-related parameters that municipal tap water providers must measure and control, such as metals (eg mercury, lead), nitrites/ nitrates or sodium.

What else could be in bottled water?

Bottled water that looks clean could actually contain lots of things. Drinking water in general is vulnerable to contamination by chemicals (e.g., lead, arsenic

² O.Reg. 169/03

benzene), microbes (e.g., bacteria, parasites) or physical hazards (e.g., particulate matter).³

In its 2008 *Guidelines for Drinking-Water Quality*,⁴ the World Health Organization noted that bottled water may contain glass and metal bits. Bromate, a possible carcinogen, may form when ozone is used as an oxidant prior to bottling.⁵ Minute quantities of chemicals like bisphenol-A (BPA) may leach from some types of plastic bottles.⁶ Since bottled water may be stored for long periods, microbes that are not usually a public health concern can grow to significant concentrations, posing uncertain risks to vulnerable populations like immunocompromised individuals, pregnant women and infants. (Expiry dates are not required on labels in Canada, although most products have a 2-year shelf life.⁷ That makes it hard to know how old a bottle is.)

What isn't in bottled water?

Then there is the fluoride question, which many bottled waters lack. The fluoride debate is a heated one, with the Canadian Dental Association opting for fluoride based on anecdotal reports correlating increase in cavities and use of bottled water and oral hygienists verifying that fluoride reduces the incidents of decay. The International Council of Bottled Water Associations denies that fluoride reduces decay, and argues that fluoride can discolor the teeth. So who do you trust on this one- your dentist, or the bottled water merchants?

Do we enforce the laws we have?

The laws on municipal drinking water safety have been heavily enforced since Walkerton. In contrast, the weak laws on bottled water labelling have barely been enforced. According to the CFIA, it didn't launch a single prosecution relating to bottled water in the past four years. The only reported conviction we found was a 2003 case, in which a bottled water distributor pleaded guilty to

³ WHO Bottled Drinking Water - October 2000 (fact sheet). At <http://www.who.int/mediacentre/factsheets/fs256/en/>

⁴ At http://www.who.int/water_sanitation_health/dwq/fulltext.pdf

⁵ WHO guidelines at 315

⁶ Health Canada FAQ at http://www.hc-sc.gc.ca/fn-an/securit/facts-faits/faqs_bottle_water-eau_embouteillee-eng.php

⁷ CFIA Food Safety Facts on Bottled Water. At <http://www.inspection.gc.ca/english/fssa/concen/specif/bottwate.shtml>

selling water falsely labelled as “spring water”; he was fined the modest sum of \$5,000.⁸

The CFIA is slightly more active in issuing health hazard alerts. In 2007, for example, there were two, both for Armenian mineral waters that contained hazardous levels of arsenic.⁹ Hazardous levels of arsenic were not found anywhere in Canadian municipal tap water.

Are we doing anything about all this?

Health Canada says it is doing something about bottled water, but progress is slow. In 2002, the Canadian Food Inspection Agency and Health Canada circulated a discussion paper with promises to update the laws on bottled water¹¹, especially labelling and limits for arsenic and lead. It admits that Canadian laws require updating to incorporate new scientific knowledge, to harmonize with standards used in Quebec, the US and the Guidelines for Canadian Drinking Water Quality (CDWQ),¹² and to better protect consumers. But nothing has been done.

One solution would be to adopt international standards on bottled water. One of the purposes of the international Codex Alimentarius¹³ was to develop food standards that protect consumer health. Two of these standards, the General Standard for Bottled/Packaged Drinking Waters (other than natural mineral

⁸ From http://archives.foodsafety.ksu.edu/fsnet/2004/1-2004/fsnet_jan_7.htm#story3

⁹ CFIA - Health hazard alert - Arsenic In Ark Land Brand Naturally Carbonated Mineral Water. March 14, 2007. At <http://www.inspection.gc.ca/english/corpaffr/reclarapp/2007/20070314ce.shtml>

¹⁰ CFIA - Health hazard alert. Excessive Levels Of Arsenic In Jermuk Classic Brand Natural Sparkling Mineral Water. March 9 2007. At <http://www.inspection.gc.ca/english/corpaffr/reclarapp/2007/20070309be.shtml>

¹¹ Making it Clear - Renewing the Federal Regulations on Bottled Water: A Discussion Paper. August 2002. At http://www.hc-sc.gc.ca/fn-an/consultation/init/bottle_water-eau_embouteillee_tc-tm-eng.php

¹² A summary table of the guideline is at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index-eng.php and technical documents are available at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/index-eng.php#tech_doc

¹³ which was established in 1963 by the WHO and the UN's Food & Agriculture Organization

waters; 2001) and the Standard for Natural Mineral Waters (1981) are available to regulate bottled water,¹⁴ but neither is being used in Canada.¹⁵

Québec stepped into the gap with its *Regulation Respecting Bottled Water*,¹⁶ a comprehensive Guide for the distribution of *imported* bottled water in the province.¹⁷ It requires a hydrogeological and vulnerability study of source waters for spring and mineral waters; detailed chemical, microbiological and radiochemical information, and standard labels. Water taken from a vulnerable site may not be labelled “spring” or “mineral” water in Québec.

Elsewhere in Canada, the Canadian Bottled Water Association has a model Code, April 2009, that it asks its members to follow.¹⁸ The Code states that “natural water”, i.e., that obtained from an underground or approved natural source, must comply with maximum allowable concentrations of parameters defined in the CDWQ Guidelines.¹⁹ The Code also sets out rules for product quality as well as good manufacturing practices, storage, handling and testing, as well as operational requirements that include bottlers submitting a hydrogeologic report that shows the integrity of the source water supply. It includes monitoring source water and the final product for contamination. Unfortunately, no one enforces this Code.

Bottom line

When we drink municipal water, we can tell where the water came from, how it has been purified and what chemical pollutants it contains. And all three of these key quality measures are closely regulated by the provinces. When it comes to

¹⁴ Access via Codex Alimentarius Official Standards – FAO/WHO Food Standards http://www.codexalimentarius.net/web/standard_list.jsp

¹⁵ Health Canada. Codex Alimentarius in Canada. <http://www.hc-sc.gc.ca/fn-an/intactivit/codex/index-eng.php>

¹⁶ c. P-29, r.1.1

¹⁷ Guide : Distribution of bottled water in Québec <http://www.mapaq.gouv.qc.ca/NR/rdonlyres/83592745-F4D2-40F4-8C08-FCDB89716720/0/no28.pdf>

¹⁸ http://www.cbwa.ca/en/modelcode_files/CBWA%20Model%20Code%20-%20April%202009.pdf

¹⁹ A summary table of the guideline is at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index-eng.php and technical documents are available at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/index-eng.php#tech_doc

bottled water, we are relying primarily on the good will of the industry itself. Is that good enough for you?²⁰

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²⁰ Gleick PH. The myth and reality of bottled water, in *The World's Water, the Biennial Report on Freshwater Resources: 2004-2005*, Island Press. At http://www.pacinst.org/topics/water_and_sustainability/bottled_water/myth_and_reality.pdf