To the Editor:
This is an article form a series of monthly columns by Environmental Law Specialist Dianne Saxe, one of the top 25 environmental lawyers in the world, and Ms. Jackie Campbell. These articles are available for publishing at no charge, provided Dr. Saxe and Ms. Campbell are cited as the authors. Dr. Saxe can be contacted at (416) 962-5882 or admin@envirolaw.com. For more information, visit http://envirolaw.com.

Canada's the first to declare BPA toxic!

Canada has just become the first country in the world to regulate bisphenol A(BPA) as a toxic substance. Our government has adopted a precautionary approach and specifically recognizes that BPA may be harmful to human and environmental health. This article highlights concerns about BPA and briefly discusses the new regulatory environment.

What is BPA and how much are we exposed to?

BPA is a human-made chemical that is used mainly in certain types of plastics, like those for food and water containers and in epoxy resins (e.g., as linings for canned foods). BPA is an endocrine disruptor, and high concentrations affect fertility and development. Previously, the model used for calculating exposure assumed that virtually all BPA exposure was via the oral route, from food and beverage containers; in fact, carbonless receipts, children's books and cigarette filters, drinking water, sewage leachate and indoor/outdoor air may account for other sources and routes of exposure.[i] [ii] Of concern, a recent study suggests that the total daily exposure to BPA in humans through multiple routes is much higher than scientists have previously predicted.[iii]

Estimates of just how much BPA humans are exposed to each day vary significantly. For example, based on a 2006 survey, the federal government estimates that 100,000 to 1,000,000 kilograms were used in Canada, and 500,000 kg imported into the country.[iv] A US reference states that over 8 billion pounds (3.6 billion kg) of BPA are produced throughout the world every year, with over 100 tons (90 tonnes) released into the atmosphere annually.[v]

Is BPA in your drink?

In 2009, Health Canada published the results of its survey of BPA in 72 **canned drink products** (all but 4 were carbonated) from Ottawa stores. Two samples of each product were analysed and the results averaged. All products sampled were found to contain BPA, with concentrations ranging from 0.032 – 4.5 µg/L (average 0.57 µg/L).[vi]

In August 2010, the government released another survey of BPA, this time in soft drinks and beer products.[vii] Thirty-eight products were sampled, including 22 soft drinks (in cans, glass or PET plastic bottles) and 16 beer samples (in cans and glass bottles). BPA was detected in 20 products: in all canned **soft drink** samples (concentrations ranged from 0.019 to 0.21 µg/L). No BPA was detected in the soft drinks in glass bottles, and in only one soft drink sample packaged in PET (0.018 µg/L). The chemical was found in all canned **beer** samples (range 0.081 to 0.54 µg/L) and in one bottled beer sample (at 0.054 µg/L).

Although these studies just provide snapshots of BPA concentrations in various products, they suggest that PBA migrates from coatings of cans into drinks. Health Canada notes that dietary exposure to BPA through such uses in food packaging is not expected to be a health risk to the general population. However, it does recommend that, as a precaution, the ALARA (as low as reasonably achievable) principle be applied with respect to infants and newborns, to minimize their exposure to BPA through this route. Check out the reports to see if your favourite drinks might contain BPA.

An overview of BPA regulation

On October 13, the federal government added BPA to the list of toxic substances in Schedule 1 of the *Canadian Environmental Protection Act, 1999* (CEPA).[viii] This is the first step in developing regulations or risk management instruments (e.g., guidelines, codes of practice) under CEPA to manage BPA's health and environmental risks.

In the Regulatory Impact Statement that accompanies the Order, the government describes its rationale for regulating BPA. The Statement provides helpful background on the federal Chemicals Management Plan, and also highlights concerns about BPA. For example, BPA may persist in the environment under certain conditions, it can accumulate in human tissues and is toxic to aquatic organisms in that it may permanently alter their hormonal, developmental or reproductive capacity. Data indicate that pregnant women, fetuses and infants are potentially sensitive to the effects of BPA, and animal studies suggest that the chemical may have neurodevelopmental and behavioural effects. The government concludes that BPA is entering the environment in quantities or concentrations or under conditions that do or may constitute a danger to human life or health.

On October 16, the Minister of the Environment published the *Proposed Notice Requiring the Preparation and Implementation of Pollution Prevention Plans with Respect to Bisphenol A in Industrial Effluents*.[ix] Following the 60-day comment period, the Minister will publish a Final Notice requiring preparation and implementation of pollution prevention plans relating to BPA in industrial effluents. The requirement will apply to facilities that manufacture or use BPA above a threshold amount, where final discharge effluent contains BPA. Some exemptions apply, and factors that must be considered in preparing the plan, as well as deadlines for plan implementation are set out in the proposed notice.

Canada is indeed leading the way with respect to BPA. On November 1, the UN Food & Agriculture Organization and World Health Organization are holding a stakeholder meeting in Ottawa to review the toxicological and health aspects of BPA.[x] An expert meeting follows, from November 2-5, also in Ottawa.[xi]

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October 18, 2010

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[i] Taylor JA et al. Similarity of Bisphenol A Pharmacokinetics in Rhesus Monkeys and Mice: Relevance for Human Exposure. Environ Health Perspect 2010 (published online 20 Sept 2010) Available: http://ehp03.niehs.nih.gov/article/fetchArticle.action?articleURI=info%3Adoi%2F10.1289%2Fehp.1002514

[ii] Vandenberg LN et al, above

[iii] Taylor JA et al, above

[iv] Canada Gazette Part II - Order Adding a Toxic Substance to Schedule 1 to the Canadian Environmental Protection Act, 1999 - SOR/2010-194. (at 1810). Available: http://www.gazette.gc.ca/rp-pr/p2/2010/2010-10-13/pdf/g2-14421.pdf

[v] Vandenberg LN et al. Urinary, Circulating, and Tissue Biomonitoring Studies Indicate Widespread Exposure to Bisphenol A. Environ Health Perspect 2010;118:1055–1070. Available: http://ehp03.niehs.nih.gov/article/info%3Adoi%2F10.1289%2Fehp.0901716

[vi] Health Canada's Survey of BPA in canned drink products. March 2009:1-8. http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/securit/bpa_survey-enquete-can-eng.pdf

[vii] Health Canada. Survey of bisphenol A in soft drinks and beer products from Canadian markets. August 2010. Available: http://www.hc-sc.gc.ca/fn-an/alt_formats/pdf/pubs/securit/bpa_survey-enquete-soft-drink-boisson-gazeuse-eng.pdf

[viii] Canada Gazette Part II - Order Adding a Toxic Substance to Schedule 1 to the Canadian Environmental Protection Act, 1999 - SOR/2010-194. Vol. 144 No. 21. October 13 2010 (at 1806-1818). Available: http://www.gazette.gc.ca/rp-pr/p2/2010/2010-10-13/pdf/g2-14421.pdf

[ix] Canada Gazette Part I. October 16 2010. Proposed notice requiring the preparation and implementation of pollution prevention plans with respect to bisphenol A in industrial effluents. Vol. 144, No. 42. October 16 2010. Supplement (59 pages) Available: http://www.gazette.gc.ca/rp-pr/p1/2010/2010-10-16/pdf/g1-14442.pdf

[x] Health Canada. Announcement of stakeholder meeting: Project to review toxicological and health aspects of Bisphenol A. Available: http://www.hc-sc.gc.ca/fn-an/alt_formats/pdf/securit/packag-emball/bpa/bpa_sma-eng.pdf

[xi] Health Canada. FAO/WHO Expert Meeting To Review Toxicological and Health Aspects of Bisphenol A (BPA). Available: http://www.hc-sc.gc.ca/fn-an/securit/packag-emball/bpa/bpa_ann-eng.php