A Sizeable Challenge Lies Ahead as Canada Surveys and Assesses Environmental Risks of Nanomaterials

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Canadians interact with nanomaterials in daily life with limited or no understanding about potential impacts.[1] Nanotechnology is used in many industries including food, electronics, water treatment, medicine, chemical sensors, fuels and batteries and other consumer products. The utility of nanotechnology is growing including, for example, in the context of soil and groundwater remediation.[2]

The *Canadian Environmental Protection Act, 1999*[3] (CEPA) regulates industrial chemical substances in the Canadian marketplace. Substances regulated under CEPA and in commerce in Canada are listed on the Domestic Substances List ("DSL"). Substances new to the Canadian market and not yet listed on the DSL are subject to CEPA's *New Substances Notification Regulations (Chemical and Polymers)*[4].

Health Canada and Environment and Climate Change Canada are assessing risks to human health and the environment posed by nanoscale forms of materials.

In July 2015, Canada launched a survey to determine the commercial status of certain nanomaterials.[5] The survey identified 53 substances at the nanoscale currently being manufactured or imported.[6] Canada will use its survey results to rank substances in priority for further study.

Canada expects to publish the results of its prioritization of substances and risks in Spring 2018 which will aid in developing a risk assessment framework for nanomaterials. This is a first step toward gaining a better understanding about toxicity of nanoscale forms of substances used in Canadian commerce.

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1 Nanomaterials are "substances that are manufactured at or within the nanoscale (1 to 100 nanometres inclusive), or have internal or surface structures in the nanoscale": Government of Canada, "Nanomaterials" (2016) https://www.canada.ca/en/health-canada/services/chemical-substances/chemicals-management-plan/initiatives/nanomaterials.html

2 Nanomaterials have uses in groundwater and soil remediation. For instance, trichloroethane in groundwater can be treated using nanoscale zero-valent iron that has been modified to contain an oil-liquid membrane. Materials using nano-sized oxides can also be used to clean up fuel oil spills from underground fuel tanks: C.S Rajan, "Nanotechnology in Groundwater Remediation" (2011) 2:3 International Journal of Environmental Science and Development [Rajan].

3 SC 1999, c 33.

4 SOR/2005-247.

5 Government of Canada, "Approach to nanoscale forms of substances on the domestic substances list" (2015) https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/approach-nanoscale-forms-substances-list.html

6 Government of Canada, "Chemicals management plan progress report" (2017) http://www.ec.gc.ca/ese-ees/default.asp?lang=En&n=6044455E-1

Canada's prioritization of nanomaterials will be based on information gleaned from the CEPA survey about volume, use, exposure routes, and scientific information about hazards and toxicity.[7] Nanomaterials that are prioritized for risk assessment are to be further assessed to determine impacts on human health and the environment.

For further information on nanotechnology, click here to read Marc McAree's article from August 1, 2009, titled "Nanotechnology".[8]

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7 Government of Canada, "Proposed prioritization approach for nanoscale forms of substances on the Domestic substances list" (2016) https://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=FA3C8DBF-1

8 http://www.willmsshier.com/resources/news/2009/08/01/nanotechnology