



September 30, 2015

Hon. Leona Aglukkaq  
Minister of the Environment  
Environment Canada  
Les Terrasses de la Chaudière  
10 Wellington Street, 28<sup>th</sup> Floor  
Gatineau, QC K1A 0H3

Re: *Order Adding “synthetic polymer particles that, at the time of their manufacture, are greater than 0.1  $\mu\text{m}$  and less than or equal to 5 mm in size” as a Toxic Substance to Schedule 1 of the Canadian Environmental Protection Act, 1999* (Canada Gazette, Part 1: Vol. 149, No. 31 – August 1, 2015)

On behalf of the Canadian Plastics Industry Association (CPIA) and the American Chemistry Council (ACC), please accept these comments on the *Order Adding “synthetic polymer particles that, at the time of their manufacture, are greater than 0.1  $\mu\text{m}$  and less than or equal to 5 mm in size” as a Toxic Substance to Schedule 1 of the Canadian Environmental Protection Act, 1999* (Canada Gazette, Part 1: Vol. 149, No. 31 – August 1, 2015), herein referred to as the “Order”.

## Background

Between our associations, CPIA and ACC represent a broad spectrum of North American plastics manufacturers, processors and convertors. The CPIA ([www.plastics.ca](http://www.plastics.ca)) is the national voice for plastics in Canada. With more than 3,170 companies employing 95,400 workers, Canada’s \$29.2-billion plastics industry is a sophisticated, multi-faceted sector encompassing plastic products manufacturing, machinery, moulds and resins. The Plastics Division of the ACC (<http://plastics.americanchemistry.com>) represents leading manufacturers of plastic resins – the basic building blocks for products that can help us do more with less and contribute to a more efficient use of resources.

As you may be aware, CPIA and ACC have taken many actions to reduce plastics in the marine environment. In 2011, along with our global colleagues, we launched the *Declaration of the Global Plastics Associations for Solutions on Marine Litter*. Since that time we have initiated more than 185 projects to reduce marine litter. One of these projects includes support for the phase out of microbeads in personal care products in a number of jurisdictions ([www.plastics.ca/home/news/microbeads.php](http://www.plastics.ca/home/news/microbeads.php); [www.americanchemistry.com/Media/PressReleasesTranscripts/ACC-news-releases/Plastics-Makers-Applaud-NJ-for-Moving-to-Phase-out-Synthetic-Microbeads-in-Personal-Care-Products.html](http://www.americanchemistry.com/Media/PressReleasesTranscripts/ACC-news-releases/Plastics-Makers-Applaud-NJ-for-Moving-to-Phase-out-Synthetic-Microbeads-in-Personal-Care-Products.html)). This also included CPIA supporting Environment Canada’s intention to regulate microbeads added to personal care products for the purpose of exfoliating and cleansing ([www.plastics.ca/Newsroom/Issues/index.php](http://www.plastics.ca/Newsroom/Issues/index.php)).

Both CPIA and ACC support these policies because many wastewater treatment plants are not currently able to remove microbeads of the size used in personal care products, and because microbeads in these products are designed for rinse-off applications that can flow unimpeded to waste water treatment plants. However, we do not support the expansive scope of the substance definition in the proposed Order that goes far beyond microbeads in rinse-off personal care products. The proposed definition would essentially add all types of plastic with a particle size greater than 0.1 µm and less than or equal to 5 mm to Schedule 1 of the Canadian Environmental Protection Act, 1999 (CEPA) without connection to intentional, unimpeded disposal into water.

Furthermore, in order to be added to Schedule 1 the substance must be “toxic” as defined in section 64 of CEPA. The attached scientific data supports the view that microbeads do not satisfy the definition of “toxic” (nor does the Science Summary) and therefore adding microbeads to Schedule 1 would be contrary to the weight of evidence approach set out in section 76.1 of CEPA.

Our primary concerns with the Order, which are expanded upon below, relate to the three following areas:

- I. The definition, including size range, presented in the Order;
- II. The lack of problem formulation and scientific support afforded by the Science Summary to the Order; and,
- III. The lack of sufficient stakeholder consultations.

**I. Definition Presented in the Order**

As presented in the Proposed Regulatory text, microbeads are defined as:

“Synthetic polymer particles that, at the time of their manufacture, are greater than 0.1 µm and less than or equal to 5 mm in size.”

The proposed definition is a major concern to CPIA and ACC as this approach to designating what is “toxic” pursuant to S.64(a) dramatically expands coverage to virtually all plastics manufacturing and importation within Canada, and does so without any sufficient supporting rationale from the Science Summary or the regulatory text of the Notice of the intent to develop microbeads regulations (the “Notice”).

We feel strongly that additional consideration must be given to the potentially unintended impacts of the proposed Order. Although we understand the intended target of the regulation is microbeads in personal care products, this proposed action would apply a “toxic” label to all types of plastics that are produced in the proposed size range, whether they are intended for further processing into useful products and critical applications, such as food and pharmaceutical packaging, or intended for down-the-drain disposal by consumers. This can be avoided by narrowing the proposed listing to focus on microbeads that are used as exfoliating and cleansing ingredients in rinse-off personal care products.

Many of our members produce “pre-production” plastic pellets that are used to create a wide range of articles, including containers and packaging that protect food from spoilage, life-saving medical equipment, car parts that lighten vehicles and reduce emissions, and electronics that allow us to telecommute to our workplace. In particular, the rotational moulding industry relies

on powder that is obtained by grinding these pellets as the primary source of raw materials to manufacture a whole host of products that are not intended for disposal in the waste water system, yet would be subject to this regulation if not modified to include the function of exfoliating and cleansing in rinse-off personal care products. The rotational moulding industry includes approximately 100 businesses in Canada, most of which have less than 50 employees, and would be made less competitive than their US competitors if they had the added burden of reporting under Section 71 of CEPA.

The overly broad definition would also negatively impact recycled plastics, which are cut into “flake” or pelletized to produce plastic materials with recycled content. Many of these flakes and all of the pellets would fall into the size range set out in the proposed Order. If recycling of plastics were discouraged or stigmatized by the unintentional inclusion of these materials in the draft Order, it would contradict the clear policy of the Canadian government and the provinces to promote recycling.

The proposed Order lists plastic pellets much larger than microbeads used in personal care products, and once again, the language of the Notice provides no scientific rationale for extending the Order to include larger pre-production pellets. Nor does the Science Summary support inclusion of materials up to 5 mm, as only three of the 17 studies reviewed included data on particles larger than 1 mm, and only four of the 17 studies reviewed included data on particles larger than 0.5 mm. In all of the 17 studies cited in the Science Summary, toxic effects were only associated with particles that were 0.5 mm or less. As noted previously, the proper application of the weight of evidence approach mandated by CEPA results in the conclusion that particle size larger than 0.5 mm do not satisfy the definition of “toxic” as set out in Section 64. Accordingly, we recommend that if Environment Canada is determined to proceed with the addition of microbeads to Schedule 1, the listing needs to be restricted to the size range of microbeads added to personal care products for the purposes of exfoliating or cleansing.

Lastly, we draw your attention to the March 24, 2015 motion on microbeads discussed in Parliament and unanimously approved:

“That, in the opinion of the House, microbeads in consumer products entering the environment could have serious harmful effects, and therefore the government should take immediate measures to add microbeads to the list of toxic substances managed by the government under the Canadian Environmental Protection Act, 1999.”

We note that the determination of whether or not to add a substance to Schedule 1 must be based on whether that substance is determined to be “toxic” in accordance with the weight of evidence approach as set out in CEPA and not based on political considerations. The fact that the Notice followed so quickly after the motion strongly suggests that political considerations, and not science, led to the Notice, contrary to CEPA. Additionally, the political will clearly demonstrated the focus should be on “microbeads in consumer products entering the environment” that “could have serious harmful effects.” As such, we respectfully request that the definition in the Order be amended to read as follows:

“Non-biodegradable, synthetic microbeads within the size range of 0.1 µm to 0.5 mm that are used as exfoliating and cleansing ingredients in rinse-off personal care products, whereby these substances are intended to be released unimpeded to the aquatic environment.”

To reiterate, the broad scope proposed in the Order is a major concern to CPIA, ACC and our members. While perhaps unintended, failing to narrow the language proposed in the Order would present very serious implications to the plastics industry and other sectors on both sides of the border.

## **II. Lack of Problem Formulation and Scientific Support Afforded by the Science Summary to the Order**

CPIA and ACC are concerned about the lack of scientific rigour and formal consultation around the Science Summary. One of the major concerns with the Science Summary is its lack of a meaningful problem formulation statement to focus the Science Summary, or ideally a risk assessment, on potential risk management options for microbeads in personal care products.

Rather than a focused problem formulation the Science Summary includes a broad discussion on the issue of plastic wastes in the environment, briefly summarizes a sub-set of the available literature on microbeads, and concludes that all microbeads (and potentially, all polymers) should be considered “toxic”.

CPIA and ACC commissioned a third-party review of the Science Summary by a leading global science consulting firm, Exponent Inc. Exponent’s report, which is attached, included two main areas of focus – 1) reviewing the studies cited in the Science Summary; and, 2) reviewing additional modelling studies. In the first portion, Exponent reviewed the 17 studies that were cited in the Science Summary as supporting Environment Canada’s recommendation that microbeads be listed as “CEPA toxic”. In the second portion, they reviewed six relevant modelling studies that were not included in the Science Summary, but that investigate the potential for sorption of organic contaminants onto plastic microparticles and transfer into the aquatic food chain, which is one way that Environment Canada has stated that microbeads may contribute to toxicity.

In general, the Exponent review of these toxicology and modelling studies indicates concentrations of microplastics that are associated with adverse effects in laboratory studies are typically much higher than environmental concentrations. In addition, though many organisms are capable of ingesting microplastics and can take up contaminants from microplastics under certain *experimental* conditions or modelling assumptions, the studies reviewed indicate that contribution of microplastics to the bioaccumulation of organic contaminants in the natural aquatic environment is expected to be minimal in comparison to other routes of exposure.

A summary of the key points from the Exponent review is provided below:

- The 17 toxicology studies included in Environment Canada’s Science Summary examined a variety of materials that are commonly found in the marine environment, including polyethylene, polypropylene, polystyrene, polyvinyl chloride, polymethyl methacrylate, polyacrylic particles and fibers, nylon filament (e.g., fishing line) and field-collected microplastics.
- Many of the authors of the reviewed studies acknowledged that the concentrations of microplastics used in their studies were well above expected environmental concentrations.
- Many of these studies do not focus on ecologically relevant endpoints. These included biomarker responses at the cellular and subcellular level, simple presence of

microplastics in organisms, and organism feeding preferences. These types of responses do not necessarily result in adverse effects to the population of organisms, which is typically the focus of ecological risk assessments.

- An overwhelming majority of the 17 studies reviewed in the Science Summary do not support the claim that microplastics elicit toxic effects in aquatic environments. Most of the studies demonstrated that organisms can ingest microplastics, but any negative effects that were reported occurred as a result of unrealistically high concentrations.
- All but one of the six modelling studies reviewed reported that the transfer of organic contaminants from plastics to the marine environment and marine organisms is likely to be insignificant.

Based on these findings from the third-party review, CPIA and ACC request that Environment Canada reconsider whether or not all “synthetic polymer particles” listed in the Notice are “toxic” and that Environment Canada take additional time to refine the problem formulation of the Science Summary and include stakeholders in the process.

We question the scientific basis of including a review of *all* microbeads and microplastics in the Science Summary, when the intent is to regulate microbeads used in personal care products for the purpose of exfoliating or cleansing, rather than all “synthetic polymer particles.” As such, we recommend a revised problem formulation narrowed to the issue at hand – microbeads added to personal care products as exfoliants and cleansers.

### **III. Need for Further Stakeholder Consultations**

As highlighted above, there are a number of major issues with the process behind the Science Summary as well as the associated findings used to justify the Order. For these reasons, CPIA and ACC encourage Environment Canada to undertake additional consultation around the Order and the Science Summary. A strengthened Science Summary that incorporates stakeholder feedback will result in a revised problem formulation and supporting document with the credibility typically associated with CMP risk assessments.

As stated in our August 31 letter (attached), we want to highlight again the lack of consultation with the plastics industry to date regarding the Science Summary and the Order. The Canadian plastics industry is a major stakeholder that has the potential to be impacted by a wide-reaching definition, and yet we were not consulted on the proposals. This is a major gap and one we wish to remedy going forward.

Although it is stated in the rationale of the Regulatory Impact Analysis Statement associated with the Order that the “proposed addition of microbeads to Schedule 1 of CEPA 1999 would not result in any incremental impacts on the public or industry”, we respectfully disagree. There is an enormous potential for negative impacts on the Canadian plastics industry and their downstream customers in Canada who mould parts and products if the proposed definition is left as it is currently stated in the Order.

We appreciate the opportunity to provide these comments and look forward to constructive dialogue around future changes to the language in the proposed Order.

Sincerely,



Carol Hochu  
President and CEO  
Canadian Plastics Industry Association



Steve Russell  
Vice President, Plastics Division  
American Chemistry Council

ATTACHMENTS:

August 31, 2015 CPIA/ACC letter re: Notice of Intent to Develop Microbeads Regulations  
Exponent: Microbeads: Review of Proposed Listing as Toxic under the Canadian Environmental Protection Act, 1999

Cc via email:

V Poter, Director General, Industrial Sectors, Chemicals and Waste Directorate, Environment Canada

D Morin, Director General, Science and Risk Assessment Directorate, Environment Canada

AJ Preece, Director General, Safe Environments Directorate, Health Canada

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