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# Nationwide Ban on Plastic Microbeads in Cosmetics

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On December 28, 2015, President Obama signed into law the Microbead-Free Waters Act of 2015 (MFWA). See *Statement by the Press Secretary on H.R. 1321, S. 2425*, 2015 WL 9450894 (Dec. 28, 2015). The MFWA bans plastic microbeads that are produced for exfoliates in cosmetic consumer products, are rinsed off “down the drain” and eventually released, following wastewater treatment, into marine environments, including rivers, lakes, and oceans. This article provides an introduction to the problem of microbeads pollution in marine environments and explores lessons learned from a multistakeholder effort to ban further production of certain types of microbeads in order to prevent further marine environment pollution.

The MFWA defines plastic microbead to mean “any solid plastic particle that is less than five millimeters in size and is intended to be used to exfoliate or cleanse the human body or any part thereof.” MFWA, §§ 2(a), ddd(2)(A), Pub. L. No. 114-114, 129 Stat. 3129 (2015) (amending 21 U.S.C. § 331). This definition is consistent with the National Oceanic and Atmospheric Administration’s definition of “microplastics,” available at <https://marinedebris.noaa.gov/discover-issue/types-and-sources>, which includes pieces of plastic that are less than five millimeters long. The MFWA microbeads are specific to consumer cosmetic products ranging from toothpaste to facial cleaners, scrubs, and other bath products. They do not include microbeads found in deodorants, lotions, or other non-cleansing cosmetic products, nor do they include noncosmetic microbeads. Noncosmetic microbeads encompass a wide range of applications, from cleaning products and medical applications to oil and gas exploration. The MFWA is thus a narrowly defined statute that does not apply to industrial microbeads, microplastics that are broken down from larger pieces of plastic, or preproduction plastic pellets. The scope of the statute may expand over time, however, to ban microbeads in more consumer products.

MFWA microbeads are primarily polyethylene or polypropylene. See H.R. Rep. No. 114-371, at 2 (2015). Microbeads also vary in size, shape, and density. Depending on their specific properties, microbeads will undergo different types of chemical transformation upon entering the marine environment. This means that microbeads could float on the surface of water, be present in the water column, sorb to sediments, or sink to the seabed. Less dense, floating beads may be ingested by pelagic and avian species, while more dense microbeads might adsorb or desorb to local persistent organic pollutants already present in the water column, including polychlorinated biphenyls. Microbeads have been found to be present in both water columns and sediment at sea and riverbeds. Microbeads may also break down and biodegrade with the help of microbes and sunlight. Health effects of microbeads for marine life are difficult to measure and are dependent on a wide variety of factors; the impact to human health of ingesting traces of microbeads is unknown. See, e.g., Marine Pollution Control Branch, *Summary of Expert Discussion Forum on Possible Human*

*Health Risks from Microplastics in the Marine Environment*, EPA Forum, Apr. 23, 2014.

Unsurprisingly, documenting the introduction to and presence of microbeads in marine environments is difficult. Ranging from one micron to five millimeters in length, microbeads often are able to slip through filtration at wastewater treatment systems. Scientific estimates vary widely, ranging from 11 billion to 8 trillion microbeads released daily into the nation’s waterways. See, e.g., John Schwartz, *Ban on Microbeads Proves Easy to Pass Through Pipeline*, New York Times, Dec. 22, 2015, [http://www.nytimes.com/2015/12/23/science/ban-on-microbeads-proves-easy-to-pass-through-pipeline.html?\\_r=1](http://www.nytimes.com/2015/12/23/science/ban-on-microbeads-proves-easy-to-pass-through-pipeline.html?_r=1); Chelsea M. Rochman et al., *Scientific Evidence Supports a Ban on Microbeads*, *Envtl Sci. Technol.* 49, 10759–10761 (Sept. 3, 2015). Removing microbeads, and microplastics in general, from marine environments is a nearly impossible endeavor as the beads are too small to be captured by nets and the waterbodies too great to be able to track and collect microbeads efficiently or effectively. Microbeads are part of the marine debris in the Great Lakes and the Pacific and Atlantic Oceans, and have even been found in Arctic sea ice. See, e.g., Alexander G.J. Driedger et al., *Plastic debris in the Laurentian Great Lakes: A review*, 41 *J. Great Lakes Res.* 1, 9–19 (2015); Kara Lavender Law et al., *Plastic Accumulation in the North Atlantic Subtropical Gyre*, 329 *Science* 5996, 1185–1188 (Sept. 3, 2010); Rachel W. Obbard et al., *Global warming releases microplastic legacy frozen in Arctic Sea ice*, 2 *Earth’s Future* 6, 317 (2014). Indeed, the claim that a “great garbage patch” has accumulated in the oceans is misinformed: the majority of microplastic samples marine debris specialists collect are small fragments less than 1 cm in size—no larger than a pinky fingernail. See, e.g., *Plastics at Sea: North Pacific Expedition*, Sea Education Association (2012), [www.sea.edu/plastics/](http://www.sea.edu/plastics/). The “micro” quality of microbeads makes them difficult to address downstream. Prevention of microbeads pollution at the source by raising awareness among consumers and by removing plastic microbeads from products is thus the most effective means to address this type of marine litter. See E. Watkins et al., *Marine litter: socio economic study; Scoping Report*, Institute for European Environmental Policy, May 2015, available at [https://www.bundesregierung.de/Content/DE/\\_Anlagen/G8\\_G20/2015-06-01-marine-litter.pdf?\\_\\_blob=publicationFile&v=4](https://www.bundesregierung.de/Content/DE/_Anlagen/G8_G20/2015-06-01-marine-litter.pdf?__blob=publicationFile&v=4).

Nongovernmental organizations have been perhaps the most engaged group advocating for the ban of microbeads in cosmetic products. At least 81 NGOs from 35 countries have stepped forward supporting bans and many have contributed scientific research toward measuring the scope of marine pollution. See *International Campaign against Microbeads in Cosmetics*, Kirschbaumke.nl, 2016, [www.beatthemicrobead.org/en/all](http://www.beatthemicrobead.org/en/all) (last visited July 1, 2016).

Moreover, industry stakeholders, the federal government, and state legislatures have responded to growing concerns about microbeads pollution in the Great Lakes and marine environments across the country. Major personal care companies like Unilever, Procter & Gamble, and L’Oréal began voluntarily phasing out the use of microbeads two years ago, and many other companies have followed suit. The American Chemistry Council (ACC) voiced its preference for national solutions and its support for the MFWA, stating that the “ACC and its members applaud President Obama and the U.S. Congress for taking this important step to ensure there

is one sensible, national standard to phase out solid-plastic microbeads from rinse-off personal care products across America.” *Bipartisan Legislation to Remove Microbeads from Personal Care Products Signed into Law*, American Chemistry Council, Dec. 28, 2015, <https://www.americanchemistry.com/Media/PressReleasesTranscripts/ACC-news-releases/Bipartisan-Legislation-to-Remove-Microbeads-from-Personal-Care-Products-Signed-into-Law.html>. Indeed, the MFWA was a bipartisan effort, supported by industry stakeholders and non-profit organizations alike.

Prior to the MFWA, states similarly engaged in efforts to enact legislation banning microbeads. At least 29 states have introduced bills prohibiting the manufacture of synthetic microbeads for cosmetic purposes. California, Colorado, Illinois, Indiana, Maine, Maryland, and New Jersey have already passed bans on the production, manufacture, or sale of personal care products containing plastic microbeads. Rachel Abrams, “California Becomes Latest State to Ban Plastic Microbeads,” *New York Times* Oct. 8, 2015, [http://www.nytimes.com/2015/10/09/business/california-bans-plastic-microbeads.html?\\_r=1](http://www.nytimes.com/2015/10/09/business/california-bans-plastic-microbeads.html?_r=1); *Political Eye Candy*, “2015—Year of the Microbead,” a blog by Michael O’Brien, <https://www.bill-track50.com/blog/uncategorized/2015-year-of-the-microbead/>.

The implications of statewide bans on microbeads on interstate commerce helped spur the movement toward federal legislation. Microbeads manufacturers are generally global manufacturers and develop products for the national market. Piecemeal, state-by-state bans would create obvious distribution and marketing challenges. In response, many microbeads manufacturers have voluntarily begun to phase out microbeads from consumer cosmetic products.

Thus, the federal nationwide MFWA was the most appropriate approach to addressing microbeads contamination in the nation’s waterways. Beginning in July 2017, the MFWA will “prohibit[] the manufacture and introduction into interstate commerce of rinse-off cosmetics containing intentionally-added plastic microbeads.” *Statement by the Press Secretary on H.R. 1321, S. 2425*, White House Office of Press Secretary, Dec. 28, 2015, WL 9450894, at \*1, <https://www.whitehouse.gov/the-press-office/2015/12/28/statement-press-secretary-hr-1321-s-24252015>; see *US Bans Microbeads from Personal Care Products*, *Chemistry World*, Jan. 6, 2016, <http://www.rsc.org/chemistryworld/2016/01/us-bans-microbeads-personal-care-products>. The MFWA also will ban sales of cosmetics containing microbeads beginning July 2018, and by July 2019 it will ban over-the-counter drugs containing microbeads. *Id.* The MFWA makes clear that Congress intended to occupy the field of cosmetic microbeads regulation. It explicitly states that:

[n]o State or political subdivision of a State may directly or indirectly establish under any authority or continue in effect restrictions with respect to the manufacture or introduction or delivery for introduction into interstate commerce of rinse-off cosmetics containing plastic microbeads (as defined in section 301(ddd) of the Federal Food, Drug, and Cosmetic Act, as added by subsection (a)) that are not identical to the restrictions

under such section 301(ddd) that have begun to apply under subsection (b).

MFWA, § 2(c), Pub. L. No. 114-114, 129 Stat. 3129 (2015). In a classic example of federalism at work, the state-level activity thus spurred an effective nationwide movement away from microbeads in cosmetics.

And the movement has grown. Led in part by U.S. plastic manufacturers, the international Declaration of the Global Plastics Associations for Solutions on Marine Litter, available at [www.marinelittersolutions.com/about-us/joint-declaration/](http://www.marinelittersolutions.com/about-us/joint-declaration/), is a global agreement that was signed by more than 60 plastics associations in 34 countries. The Declaration outlines plastics associations’ commitments to engage with other public and private stakeholders to reduce marine litter. Since 2011, the plastics industry has launched over 185 projects to reduce marine litter, and support for microbead legislation in the United States is but one such project. See Europe World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company, *The New Plastics Economy—Rethinking the future of plastics* (2016), available at [www.ellenmacarthurfoundation.org/publications](http://www.ellenmacarthurfoundation.org/publications). Europe and Canada have also considered laws to ban microbeads in cosmetic products. See Ned Stafford, *Europe mulls laws to tackle microplastic scourge*, *Chemistry World*, Feb. 5, 2015, [www.rsc.org/chemistryworld/2015/02/europe-mulls-laws-tackle-microplastic-scourge](http://www.rsc.org/chemistryworld/2015/02/europe-mulls-laws-tackle-microplastic-scourge); *Microbeads ban forthcoming, federal government says*, *CBC News*, July 31, 2015, available at [www.cbc.ca/news/technology/microbeads-ban-forthcoming-federal-government-says-1.3175296](http://www.cbc.ca/news/technology/microbeads-ban-forthcoming-federal-government-says-1.3175296).

The MFWA and corresponding statewide bans on microbeads were an enormous feat that was advanced by the support of bipartisan government, nongovernmental organizations, and industry stakeholders. Marine debris persists in far greater scope than just cosmetic microbeads. In fact, it is estimated that approximately eight million metric tons of plastic waste is released to the ocean every year, predominately from fast-growing countries in Asia that lack basic waste management. Ocean Conservancy and McKinsey Center for Business and Environment, *Stemming the Tide: Land-based strategies for a plastic-free ocean* (2015), available at [www.oceanconservancy.org/our-work/marine-debris/mckinsey-report-files/full-report-stemming-the.pdf](http://www.oceanconservancy.org/our-work/marine-debris/mckinsey-report-files/full-report-stemming-the.pdf). Industry and NGOs have also partnered through the Trash Free Seas Alliance to study how to reduce this flow. *Id.* Marine debris in the oceans has been tracked to reach as far as the Arctic Ocean and has been found in high concentrations along particular convergence zones in the five gyres of the oceans.

The need for plastics and the benefit of plastics is undeniable, but the lesson learned from MFWA is that all stakeholders really can engage to achieve a practical, economical means to reduce marine pollution. Cleanup of microbeads is nearly impossible for the reasons stated above, but what is clear is that industry stakeholders are voluntarily engaging in efforts to minimize the plastics debris that winds up in navigable waters. 🌳

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