

March 19, 2025

To: Honorable David Bennett, Chair and Members of the House Environment and Natural Resources Committee

From: PRINTING United Alliance

Re: Oppose – RI H 5492 Microplastics Reduction Act

Dear Honorable David Bennett, Chair and Members of the House Environment and Natural Resources Committee,

We are writing to respectfully oppose H 5492 related to the Microplastics Reduction Act, which would ban the sale, offer, or distribution into commerce of any product containing synthetic polymer microparticles beginning January 1, 2028.

As background, the Alliance represents the interests of facilities engaged in producing a wide variety of products through various print processes including screen printing, digital imaging, flexography, and lithography. There are 126 facilities involved in printing and packaging in the state of Maine that employ almost 3,500 people. The value of goods shipped ranges from \$1.2 billion to \$1.4 billion per year. The printing and packaging industry is comprised primarily of small businesses, with approximately 95 percent classified as a small business according to the Small Business Administration standards.

The Alliance supports Rhode Island legislators' efforts to protect its communities, environment, and natural resources. However, this bill imposes a ban on polymer microparticles without completing a science- and risk-based assessment.

A science- and risk-based system is necessary to better understand the potential risks posed by microplastics. The bill enacts a ban on micro-particles before evaluating data from studies of soil, water, and other media, or developing a comprehensive strategy to reduce microplastics.

In addition, it assumes that a product that contains a microparticle releases the microparticle and this is not accurate. There are many products that contain microparticles that do not release them when the products are used. This raises concerns about unintended consequences in various sectors that rely on these materials, including industries that use inks and toners.

Impact on Printing and Other Industries

One of the significant unintended effects of this bill is its potential to restrict or ban certain types of printing materials. The bill incorrectly assumes that a product containing microparticles will release them and that is certainly not the case as it applies to printing applications.

The legislation defines microplastics as small plastic particles less than five millimeters in size or the length of the particles is equal to or less than fifteen millimeters (15mm) and the particle's length is greater than three (3) times the diameter. While this definition addresses a significant environmental concern, it also includes a wide range of products that could be severely affected by these regulations.

One of the most pressing issues is the impact the bill will have on printing materials, including toners used in laser printers, photocopiers, and other printing devices. Toner used in printing is ground to a very fine particle size to enhance image resolution. The toner once applied to paper or other substrate is fused when dried making the printed film solid. Historically, toner particles average 14-16 micrometers in size, but manufacturers have reduced particle sizes to approximately 8-10 micrometers for 600 dots per inch resolution. Smaller particle sizes are critical for high-resolution printing.¹²³⁴

Conventional inks that are used to print a wide variety of products include books, flyers, catalogs, direct mail, envelopes, flooring materials, laminates, textiles, and apparel, all contain components that would fit the definition of a micro particle and thus would be banned. The size of the particles plays a big role in such things as application, performance, and properties. For inks and coatings in general, encapsulated pigments, matting agents, or waxes need to be small enough to give the desired properties such as gloss level, color, transparency, or lubricity of the surface (waxes), etc. The size of pigments, waxes, and matting agents are typically measured in microns, and are well below the 5 mm size.

Any of the particles used in inks and coatings must be small enough to allow proper transfer and print resolution during the printing process and there are no substitutes. Because there are no substitutes for these materials, printing of a significantly large number of products will be stopped causing a large negative impact to the economy of the state along with increasing the unemployment level.

Likewise, many conductive inks that are used for several critical printed electronic applications would also be banned. For example, nanoparticles are being used in ink formulations to make the ink conductive. Some nanomaterials have extremely high electrically conductive properties that

¹ AZoM. (2024, February 14). *Particle shape of toner powder for laser printers*. <https://www.azom.com/article.aspx?ArticleID=17420>

² Particle Shape. (2025, February 17). *Circularity of Toner Particles monitored with Dynamic Imaging*. <https://particleshape.com/application-notes/particle-shape-analysis-of-toner-powder-for-laser-printers/>

³ Particle Shape. (2019, October 10). *PARTICLE SHAPE APPLICATION EXAMPLE: Toner powder - Particle Shape*. <https://particleshape.com/particle-shape-application-example-toner-powder/>

⁴ Tyagi, D. (2003). *Toners for high quality digital production printing*. In *Proceedings of DPP2003: IS&T's International Conference on Digital Production Printing and Industrial Applications*. IS&T. Retrieved from <https://www.imaging.org/common/uploaded%20files/pdfs/Papers/2003/DPP-0-289/9024.pdf>

can be utilized in ink formulations. A simple and versatile nanoparticle ink made from tin oxide has been developed to help next-generation perovskite solar cells to be printed at scale and become the dominant force in commercial photovoltaics.⁵

Silver nanoparticle ink technology is being used to print a variety of products and is now being used for innovative products. Printed electronics will bring to the consumer level great breakthroughs and unique products, shifting the usual paradigm of electronic devices and circuit boards from hard boxes and rigid sheets into flexible thin layers and bringing innovative electronics, smart tags, and other similar products. The most promising tool to achieve the target depends upon the availability of nanotechnology-based functional inks.⁶⁷

As a result, this bill would effectively ban or restrict the use of many types of printing materials, as inks and toners often contain synthetic microplastic components. This could lead to significant disruptions across various sectors, including education, business, government, and publishing, all of which rely upon printed materials for day-to-day operations. The inability to use traditional printing inks and toners will not only increase operational costs but could also reduce the quality and longevity of printed documents. It will stifle innovative technologies that are necessary to reduce greenhouse gas emissions and reduce energy consumption.

Furthermore, the transition to alternative materials may not be feasible or cost-effective, and it could take years for research and development to bring viable substitutes to market, assuming alternatives can be found. This creates a risk of unintended economic consequences, particularly for small businesses that rely on affordable printing solutions.

Microplastic Definition and Potential Environmental and Human Health Impacts

As a general principle, we support funding research necessary to close information gaps identified by the World Health Organization to better inform risk assessments. Several critical measures are needed to ensure regulators have access to high-quality data, including:

- Adoption of a standardized definition for microplastics and supporting definitions to avoid uncertainties when enforcing the regulation.
- Development and adoption of standardized and validated analytical methods to accurately measure microplastics in various environmental media.

⁵ AZoNano. (2023, August 18). *Nanoparticle Conductive Ink*. <https://www.azonano.com/article.aspx?ArticleID=5248>

⁶ Nanotechnol Sci Appl. 2016 Jan 11;9:1–13. doi: [10.2147/NSA.S68080](https://doi.org/10.2147/NSA.S68080)

⁷ Fernandes, I.J., Aroche, A.F., Schuck, A. *et al*. Silver nanoparticle conductive inks: synthesis, characterization, and fabrication of inkjet-printed flexible electrodes. *Sci Rep* **10**, 8878 (2020). <https://doi.org/10.1038/s41598-020-65698-3>

- Development and use of scientifically robust hazard screening and testing methods, including quality assurance and quality control criteria for hazard testing, and reference materials.
- Adoption of a risk assessment framework that addresses the complexities of microplastics, hazards, and exposures.

The bill is based on the premise of a widely agreed-upon science-based definition of "microplastics." However, there is currently no universally recognized definition of microplastics.

A single definition of microplastics should be adopted based on those developed through consensus-driven processes such as the ASTM and ISO organizations, which would prevent ambiguity between scientists and regulators. It is important to note that under the current definition in the bill, materials like dyed wool would be classified as "synthetic polymer microparticles." It is likely that many other polymer types would be unintentionally classified under such a vague definition.

We recommend only using proper QA/QC testing protocols for microplastics to ensure that the analysis and regulation of these substances are based on accurate, reliable methods.

The development and adoption of standardized analytical methods, test methods, quality assurance and quality control criteria, and reference and test materials would ensure that measurements of microplastics in the environment are consistent and replicable across laboratories.

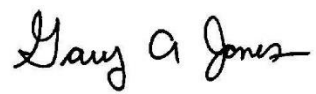
Conclusion

We urge you to consider these potential impacts when reviewing the bill. While it is vital to address the issue of microplastic pollution, a balanced approach is necessary to ensure that industries and consumers are not unfairly burdened by regulations that may inadvertently stifle growth or innovation.

We strongly recommend the Committee consider the concerns and recommendations laid out in this letter to provide reasonable, achievable, and consistent timelines, scopes, and other key elements. We encourage the Legislature to take this approach not only with this bill but with any future legislation impacting industries and products.

In conclusion, we urge you to oppose H5492, which if passed in its current form would have devastating unintended consequences on the printing and other industries that rely upon toners and inks. The printing industry is committed to sustainability, but additional research on the impact of microparticles is needed before they can be regulated. Please let me know if you have any questions or would like to discuss this issue any further. I can be contacted at 703.359.1363 or gjones@printing.org.

Sincerely,

A handwritten signature in black ink that reads "Gary A. Jones". The script is cursive and fluid, with the first letters of each word being capitalized and prominent.

Gary A. Jones
Vice President EHS Affairs