



February 28, 2024

The Honorable David A. Bennett
House Environment and Natural Resources Committee
82 Smith Street
Providence, Rhode Island 02903

RE: HOUSE BILL NO. 7357, AN ACT RELATING TO HEALTH AND SAFETY – HIGH HEAT WASTE FACILITY ACT

Chair Bennet and Members of the Committee:

We applaud this committee's focus on protecting the environment and the health and safety of the residents of Rhode Island. However, Nexus Circular is submitting written testimony respectfully opposing the recycling technology classifications and permitting prohibitions proposed by HB 7357.

As a non-mechanical plastics recycling company, we understand and share the bill sponsor's concern with the environmental impact and public health concerns relating to incineration technologies and the combustion of solid waste. This bill addresses concerns about incineration by prohibiting the permitting or licensing of new incineration facilities. But this bill also very inaccurately and unilaterally extends those concerns and suggested remedy to a whole suite of emerging non-mechanical recycling technologies that do not pose the same risk. As a non-mechanical recycler, Nexus would like to address what we feel is a mischaracterization of our pyrolysis technology being defined as a "high-heat waste facility" by this bill. This bill uses an unnecessarily broad brush when it comes to defining "high-heat waste facilities", creating restrictions for recycling technology innovation.

The range of technologies that would be prohibited under this bill are all quite unique in terms of inputs and outputs and many of these technologies are a complement to traditional mechanical recycling. Unlike incineration, technologies like pyrolysis and solvolysis enable the conversion of harder-to-recycle plastic formats into new products that can be used to remake plastics, again and again, creating a circular loop and moving us closer towards a circular economy.

About Nexus

Nexus was founded in 2008 with the goal of offering recycling solutions for plastics not widely recycled by the mechanical recycling infrastructure. Our first commercial line was commissioned in 2018 in Atlanta, GA and Nexus has been selling commercial volumes of our pyrolysis products for over five years.

Nexus pyrolysis products are purchased by global companies for use in their integrated manufacturing facilities as value-creating feedstocks for new, virgin quality plastics and other products, offsetting the demand for more extraction of resources. Every tanker or rail car of pyrolysis products produced by Nexus directly displaces the same volume of fossil-based feedstocks, reducing the need to extract and refine new fossil-based resources. At Nexus we are ensuring that



the resources that we already have above ground stay in play, helping to decouple manufacturing from extraction and reduce the dependence on non-renewable resources.

Incineration v. Pyrolysis

HB7357 effectively categorizes any technology that alters plastics at a molecular level, using temperatures above 400°F, as equal. We do not understand the rationale for this approach and question the overall benefit. Using incineration and pyrolysis as a point of comparison, we would like to highlight these are two very different technologies using different processes that lead to equally different outcomes. The table below shows this distinction at a very high level:

Attribute	Incineration	Nexus Circular’s Pyrolysis
Processing Condition	High oxygen at 1400-1500 °C	No oxygen at 400-500 °C
Daily Capacity	1,650 tons (Haverhill, MA) ¹	400 tons (new GA facility under construction)
Economics of Feedstock	Charge a per-ton fee for processing municipal waste	Pay for segregated plastics used as feedstocks for recycling
Treatment Solution	Combustion for volume reduction landfill avoidance	Conversion for recycling
Primary Product	Electricity sent to the grid	Pyrolysis oil sold / used as building blocks for new products

Based on these areas of comparison, it is evident that incineration and pyrolysis are technologies that operate at a different scale, consuming very different types of feedstocks, offering different materials management solutions, and resulting in different primary products. As you can imagine, the environmental and human health risks presented by these two technologies are also significantly different.

Another challenge with this bill is the seemingly arbitrary processing temperature threshold for non-mechanical recycling technologies of 400°F. Nexus requests that the committee consider how and why this temperature threshold was established. Some grades of plastics, such as those found in use by the healthcare industry, electronics, transportation, and sporting equipment are recycled at temperatures that exceed 400°F. For example, polycarbonate requires mechanical recycling temperatures in the range of 428°F to 482°F². It seems inconsistent that mechanical recycling can safely occur at temperatures above 400°F, but non-mechanical recycling technologies cannot. Is there a scientifically based justification for the processing temperature limit of 400°F being set by HB 7357? If a temperature threshold is going to be established for limiting future permitting, it needs to have a sound justification.

Expanding Recycling

Non-mechanical recycling technologies like Nexus will be essential for closing the loop on plastics products that cannot be easily recycled through mechanical recycling, returning those plastics to productive use in the supply chain. *We would encourage this committee to consider strategies for expanding the range of recycling opportunities for plastics rather than limiting them.*

¹ Massachusetts Department of Environmental Protection, *Municipal Waste Combustors*,

<https://www.mass.gov/guides/municipal-waste-combustors>

² EuroPlas, *Temperature ranges for different plastic materials*, [https://europlas.com.vn/en-US/temperature-ranges-for-different-plastic-materials#:~:text=Different%20types%20of%20plastic%20have,C%20\(392%C2%B0F\).](https://europlas.com.vn/en-US/temperature-ranges-for-different-plastic-materials#:~:text=Different%20types%20of%20plastic%20have,C%20(392%C2%B0F).)



Non-mechanical recycling technologies are reaching scale, and creating solutions for hard-to-recycle plastic formats that include films and flexible packaging (stretch wrap, grocery bags, food storage bags, air pillows and bubble wrap), used motor oil bottles, hospital and healthcare plastics, small parts like straws and bottle caps, and lightweight materials like foams and protective packaging materials. When integrated into a system that prioritizes reduction and reuse, these technologies help greatly expand the opportunities to recycle, helping states meaningfully address the plastics pollution challenge.

If the intent of this committee is to address the environmental, health and safety risk of incineration, we encourage the committee to consider a bill that specifically and exclusively addresses that. When assessing the role and impact of emerging and innovative recycling technologies in the state, Nexus encourages Rhode Island to consider the inputs and outputs of the specific non-mechanical technologies listed in this bill and then to develop the best regulatory approach to properly address and manage the applicable environmental and public health risks. Adopting rules that would unilaterally omit these technologies in the future means ultimately limiting the state's ability to expand plastic recycling.

We would encourage the Committee to take a thoughtful approach to the legislative solutions that will enable Rhode Island to achieve the goals of protecting the environment, human health *and* advancing the circular economy. In its current form, HB7357 does not achieve that. Nexus would be happy to answer any questions the committee members might have about our pyrolysis technology or the distinctions offered here vs incineration.

Respectfully,

A handwritten signature in black ink that reads "Carla Toth". The signature is written in a cursive, flowing style.

Carla Toth
Senior Vice President Business Development
Nexus Circular