GAPC CPT

GROUPE D'ACTION PLASTIQUES CIRCULAIRES

CIRCULAR PLASTICS TASKFORCE

Advancing Food-Grade Recycled Plastics in Canada

Challenges and Regulatory Perspectives

About the Circular Plastics Taskforce

The Circular Plastics Taskforce (CPT) is a non-profit organization that brings together industry leaders to help improve recovery and recycling of post-consumer plastics collected from Canadian households. The CPT is an unprecedented collaboration between food product companies, packaging producers, producer responsibility organizations (PROs) and industry associations, led by Cascades, Danone Canada, the Chemistry Industry Association of Canada, Circular Materials, Éco Entreprises Québec, Keurig Dr Pepper Canada, ProAmpac Canada and Recycle BC.

In 2021, the CPT completed its Phase 1, an exhaustive mapping of the plastics recycling value chain in Quebec, which identified important challenges related to plastic recycling and suggested innovative solutions. One of the main recommendations from this study was to initiate a collaboration with Health Canada towards simplifying and standardizing the food-grade qualification and compliance mechanisms that exist in Canada, in order to facilitate the production of higher volumes of recycled plastics suitable for food applications.

To move this recommendation forward, the CPT, working with consultants Michel Gosselin, Mario Grenier and Alexei Kazakov, initiated a research project that led to the release of a comprehensive report, entitled *Evaluation of regulations, guidelines and challenges associated with the use of recycled plastics in food packaging – roadmap and recommendations from the Canadian industry*. This white paper summarizes the main takeaways from this research and presents the CPT's perspective and recommendations.

We would like to thank all recyclers, manufacturers and other stakeholders that have participated in the interviews. Without their valuable input, this project could not have been realized in such completeness. Also, special thanks to the Health Canada and the Food and Drug Administration (FDA) staff for providing useful information and answering questions in a complete and diligent way.

Context and Project Objectives

As the use of plastics in food packaging applications has grown, the composition and formats have multiplied, and so have the challenges for the recycling industry, with recyclers now having to compose with a wider variety of materials.

Meanwhile, consumer products companies have set ambitious post-consumer recycled content (PCR) goals and may eventually be faced with mandatory targets for PCR use in their products and packaging. In this context, brand owners and their packaging suppliers will have to source larger quantities of food-grade recycled resins, which will open considerable market opportunities for plastic recyclers with that capability.

The goal of the research project is to provide recommendations towards a clearer and more systematic food-grade approval process that will both support an increase in the use of food-grade recycle resins in Canada and ensure that it remains safe for consumers.
More precisely, the study aims at:

→ **DOCUMENTING**
compliance processes and legislation for food-grade recycled resins in Canada, the United States and Europe, and identify best practices.

→ **DETERMINING**
the information required by Health Canada and the FDA to issue Letters of No Objection (LONOs) and No Objection Letters (NOLs).

→ **RECOMMENDING**
improvements and standards for food contact compliance models.

→ **CREATING**
a process flow chart and decision tree for producing and using food-grade recycled plastics in Canada.

Post-consumer [recycled] resin (PCR) is defined as plastic material generated by households or by commercial, industrial or institutional facilities in their role as end users of the product which can no longer be used for its intended purposes, including returns of the material from the distribution chain (BNQ, 2023, adapted from CSA ISO 14021).

Regulatory Landscape Comparison

	Canada	United States	Europe
Entity Overseeing the Compliance Process	Health Canada and the Canadian Food Inspection Agency (CFIA)	The Food and Drug Administration (FDA)	The European Food Safety Authority (EFSA) The European Commission, the European Parliament, and EU Member States make the decisions to protect the health of European consumers and the safety of the food chain.
Regulatory Framework	The Canadian Food and Drug Regulations, *the Canadian Food and Drugs Act and the Safe food for Canadians Act* and Regulations.	The Code of Federal Regulations (CFR)	• **Regulation (EC)** No 1935/2004 sets the general requirements for all materials in contact with food. • **Regulation (EC)** No 2023/2006 describes good manufacturing practices for all materials in contact with food. • **Regulation (EU)** No 10/2011 defines criteria for composition of new plastic materials. • **Regulation (EU)** No 2022/1616 defines criteria for recycled plastic materials in contact with food.

	Canada	United States	Europe
List of Permitted Substances in Plastic Materials	Health Canada maintains a list of permitted polymers, but does not provide a comprehensive list of additives, pigments, materials, or recycling processes allowed for food packaging applications.	The FDA maintains a register of "No Objection Letters" (NOLs), issued on a case-by-case basis for each proposed use of recycled plastic.	The European Union maintains a list of substances permitted in the manufacturing of plastic materials intended for food contact.
Access to List of Approved Processes	Not public. **Additional resource:** Health Canada's *Guidelines For Using Recycled Plastics in Food Packaging- Considerations for Secondary Recycling Processes details common processes* used in the production of food-grade PCR.	Public domain. **Additional resource:** *Use of Recycled Plastic in Food Packaging (Chemistry Considerations): Guidance for the Industry* is a non-binding guide that outlines conditions specific to use of recycled plastics.	Public domain.
Pre-market Clearance	Voluntary	Voluntary	Mandatory

	Canada	United States	Europe
Responsible Entity and Approval Process	**Manufacturers** of food packaging are responsible to meet all safety requirements.	**Manufacturers** of food packaging are responsible to meet all safety requirements.	**Recyclers** must submit their processes to be assessed by the EFSA and approved by the European Commission.
Nature of the Approval	Not legal	Not legal	Legal

Key Considerations

01 The Canadian government has initiated the development of regulations that will set minimum PCR content requirements and recyclability labelling rules for certain plastic manufactured items. Except for beverage containers, food contact packaging will not be subject to minimum recycled content requirements in the initial phase of this proposed regulation, because of the recognized limited supply of food grade recycled resins.

02 An important element of the Health Canada, FDA, and EFSA guidelines is evaluation of the efficiency of a cleaning and recycling process for removing contaminants. All three guidelines state that this may be measured by performing a "challenge test," using a mixture of selected surrogate chemical contaminants, which represent a worst-case scenario for common contaminants that could be introduced in the process from the post-consumer streams.

03 Compliance mechanisms are stricter in Europe, where there are additional considerations related to quality control and good manufacturing practices, as well as more severe thresholds of concern applied for human exposure to chemicals.

04 Because LONOs/NOLs are not mandatory, in Canada and the United States, manufacturers may prefer to rely on a Letter of Guarantee from their supplier.

A Closer Look at Food-Grade Plastics Recycling in Canada

Challenges Facing the PCR Circular Economy in Canada

01 **The qualification process led by Health Canada is not clear.**
There are no tools, checklists, or standards to guide the application of best practices for production of recycled resins.

02 **The cost and resources required to prepare a LONO can be prohibitive.** The fees assumed by recyclers to prepare their LONO are substantial and the process to provide the required information can be time-consuming.

03 **Apart from PET, availability of high-quality food-grade recycled resin is limited.**
According to the stakeholders interviewed as part of this study, this situation is the result of several compounding factors:

- → Ineffective and inadequate collection and sorting practices lead to low-quality bales produced by material recovery facilities (MRFs). Once minimum contamination rates are met, improved material quality is not a determining factor in pricing, so there is no incentive for MRFs to lower contamination rates.
- → Many of the packaging formats on the market are not designed to be recycled back into packaging, let alone into food applications. Implementing best eco-design practices such as reduced printed coverage or using mono-material structures could help improve quality.
- → Recyclers feel it is risky to invest in improved recycling technology and infrastructure due to unstable prices, uncertain supply, and lack of long-term contracts needed for both supply and sale. For certain resins, such as PP, the demand for non-food-grade material is greater than food-grade, and as a result recyclers are not inclined to invest in the technologies required to produce food-grade resins.
- → The low price of virgin resin compared to PCR puts economical pressure on recyclers and compromises their viability. Furthermore, the cost of solving the technological barriers in order to meet the increasing demand for food-grade PCR will become prohibitive without financial assistance from governments and producer responsibility organizations (PROs).

Main Requirements for Obtaining a LONO

Health Canada's review process has two main requirements to issue a LONO for food-grade packaging:

01 **Material Sourcing**
Reclaimers must prove that the plastic material they are sourcing was originally approved as food-grade. Options include source segregation (for example, deposit return systems for PET bottles) or attribute sorting (including technologies such as digital watermarking).

02 **Ability to Decontaminate**
Reclaimers must prove that their processing line is able to remove contamination to ensure a compliant output. Challenge testing is used as proof of decontamination: a contaminated sample is run through a reclaimer's system and downstream analysis confirms if the unwanted substances have been removed.

Note: this test is not feasible for PS.

Food-Grade Recycling Systems Maturity in Canada

	MOST MATURE			LEAST MATURE	
	PET RECYCLING	**HDPE RECYCLING**	**PP RECYCLING**	**LDPE RECYCLING**	**PS RECYCLING**
Access to Significant Quantity of Verifiable Food-Grade Source Material	✓	✓	✗	✗	✗
Well-Established Ability to Decontaminate	✓	✓	✓	✓	✗
Recycling Capacity for Food-Grade Application	Established and mature	Established and growing	Not established but emerging	Not established but emerging	Not established
PCR Generated	• Flake (clear, green) and pellets (clear, green, black)	• Pellets (natural, colour) and flakes (colour)	• Pellets and flakes (mostly coloured)	• Pellets (natural, colour) and flakes (colour)	• Expanded polystyrene (EPS) or PS flake (white, clear) and PS pellets (clear, colour)
PCR Markets	• Food and non-food bottles and thermoform containers • Fibers • Strapping	• Rigid food packaging • Industrial and consumer packaging • Automotive components • Pipes • Household items	• Rigid food packaging • Industrial and consumer packaging • Automotive components • Pipes • Household items	• Flexible food and non-food packaging • Durable goods	• Mainly non-food applications but some food containers • Thermoformed and EPS packaging: food and non-food containers for packaging applications
Opportunities	• Confirm that FDA LNO suffices as confirmation of LONO for PET • Harmonize with the FDA and remove limits for non-food grade PET • Improve speed of the Health Canada LONO process	• Coordinate FDA and Health Canada compliance processes to avoid duplication	• Coordinate FDA and Health Canada compliance processes to avoid duplication • Develop capacity to produce source-controlled feedstock	• Coordinate FDA and Health Canada compliance processes to avoid duplication • Reduce contamination with multi-layer packaging • Develop capacity to produce source-controlled feedstock	• Coordinate FDA and Health Canada compliance processes to avoid duplication • Increase PS collection • Invest in technological capabilities
Notes	Health Canada and the FDA consider all PET resins as food-grade. PET food-grade recycling processes are well-established in Canada and the U.S.	Recyclers do not view food-grade processes as profitable due to limited supply of food-grade feedstock, combined with a more stable market for non-food-grade plastics.	Only one PP recycler in Canada currently produces food-grade pellets. High demand for non-food material and high costs makes it difficult to justify the investment needed to produce food-grade materials.	Recycling streams targeting LDPE (e.g., film plastic) are often contaminated with unrecyclable multi-layer/ multi-material structures. Recyclers do not view food-grade processes as profitable due to limited supply of food-grade feedstock, combined with a more stable market for non-food-grade plastics.	The demand for recycled PS far exceeds current supply. It is difficult for food packaging manufacturers to source food-grade recycled PS at competitive prices. No-one has yet passed the challenge test for decontamination in the U.S. or Canada.

Key Findings and Recommendations

→ **Although Canadian qualification and compliance processes are aligned with U.S. mechanisms,**
they lack clarity compared to best practices implemented in other jurisdictions.

→ **There are no standard Canadian protocols to guide PCR qualification as food grade,**
which creates inefficiencies and complicates the process for applicants.

→ **Technologies exist to manufacture food-grade LDPE, PP, and PS**
but the food-grade qualification process is challenging due to the lack of suitable feedstock, the complexity of ensuring traceability, and economic considerations.

→ **PET and HDPE recycling systems are more mature;**
they face little difficulty meeting the requirements necessary to be issued a Health Canada LONO.

→ **In order to increase the volume of food grade PCR produced,**
the industry needs to develop its capacity to leverage new feedstock, including that coming from curbside collection. However, traceability and sorting technologies are currently insufficient, and it proves challenging for recyclers to achieve compliance for food grade recycled content produced with curbside materials.

KEY FINDINGS

Health Canada

Develop standardized compliance mechanisms and implement streamlined authorization processes for food-grade recycled resins.

→ **AIM**
to increase the efficiency of its processes to match that of the FDA.

→ **FORMALIZE**
a fast-track review process for petitioners who have already obtained an NOL from the FDA. A harmonized US-Canada approach would lessen the burden for applicants and increase government capacity in other areas.

→ **CONSIDER,**
in consultation with the FDA, adding a requirement for Risk and Failure Analysis as it is becoming a standard practice within the food industry in North America.

→ **PUBLISH**
a list of LONOs issued for recycling processes.

→ **PUBLISH**
an exhaustive list of allowed substances, additives, pigments, etc., considered safe for food contact applications, listing the applicable food type and conditions of use.

→ **RECOGNIZE, AUTHORIZE,**
and clearly list specific sorting and recycling processes that would guarantee a minimum food-grade quality.

→ **PUBLISH**
a list of recognized functional barriers for PE, PP, and PS.

→ **ESTABLISH**
a clear maximum percentage of non-food material allowed in source material. This threshold should be based on scientific evidence and be the same for all applicants to create a level playing field.

→ **FOLLOW**
EFSA's lead by defining when the PCR resulting from recycling processes does not require testing to confirm it meets the standard of food-grade (e.g., closed loop systems using food-grade plastics).

→ **CLARIFY**
requirements for recycled plastics produced through chemical recycling processes, as advanced recycling is expected to become a complementary method that will increase the supply of food-grade recycled plastics.

→ **CONSULT**
with industry and stakeholders before setting "acceptable recycling processes" as part of any the future mandatory food packaging materials (FPM) program, as this will have an important impact on markets.

RECOMME

Industry and Stakeholders

Lead the adoption and/or development of programs and standardized protocols to complement existing compliance mechanisms.

→ **PERFORM**
risk assessments prior to using PCR in food-grade packaging.

→ **EXPEDITE**
processes by making use of existing risk assessment tools (e.g., Hazard Analysis Critical Control Points (HACCP) Risk Assessment Matrix or the Good Manufacturing Practice (GMP) Risk Assessment Protocol).

→ **DEVELOP**
new streamlined protocols for recycling and manufacturing to improve efficiency, including a risk assessment and mitigation protocol. This could include developing a PCR standard for food-grade plastics and accompanying certification system.

→ **INCREASE AND IMPROVE**
a secure and traceable supply of food-grade feedstock by putting systems in place that are capable of differentiating food and non-food-grade packaging coming out of the curbside collection systems, to distinguish between PIR and PCR sources, and determine how AI could assist this work.

→ **IMPROVE**
clarity about the safe use of PCR by defining the parameters necessary for functional barriers in multilayer rigid and flexible food packaging, as well as creating an accessible library of information.

→ **WORK**
with Health Canada to develop a process to confirm the safety of PS PCR (e.g., challenge test).

→ **LEVERAGE**
curbside collected plastics to achieve regulatory compliance and voluntary commitments.

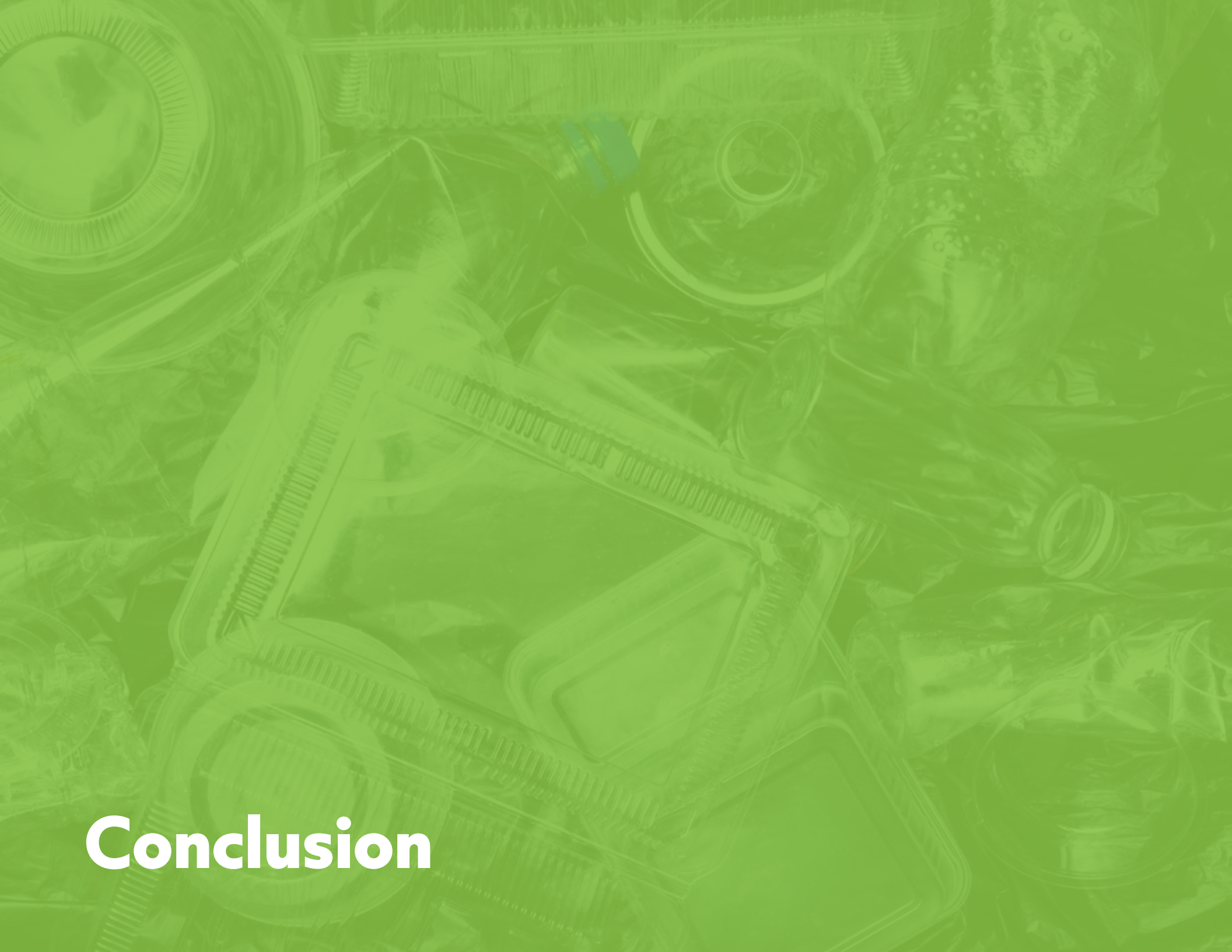
→ **DEVELOP AND IMPLEMENT**
methods and technologies that ensure traceability and advanced sorting of curbside materials to protect food safety and human health.

→ **DEVELOP**
case studies on specific packaging types (for example, yogurt cups, PP trays, PS trays) to determine the best quality control and traceability methods to support the production of food-grade PCR.

→ **INCENTIVIZE**
improved feedstock supply. In EPR systems, PROs should incentivize higher quality plastic bales.

→ **DEDICATE**
resources to scale up the technologies required to support the production of food-grade resins.

→ **WORK TO CREATE**
favorable economic conditions (e.g., attractive prices, reliable feedstocks, long-term buying commitments) that are essential to support the development of a healthy and profitable food-grade plastic production sector.



Conclusion

Demand for PCR use in food packaging applications is increasing, and Canada needs a well-functioning process to ensure that its use is safe. However, the current system is difficult to navigate and lacks systemization, which renders food-grade approval difficult for industry stakeholders.

The best practices identified in this White Paper, that targets both industry stakeholders and food safety authorities, provide a path forward to improve clarity and ease in navigating the system. By doing so, the CPT believes that we can collectively improve confidence in the approval process and support greater willingness to invest in systems capable of increasing the supply and use of food-grade PCR. We hope that this White Paper will be a stepping stone towards ensuring a better alignment between supply and market demand.

Through its research and pilot projects, the CPT remains committed to contributing to improved industry performance and to the production of higher quality recycled materials. While technology exists and continues to be developed, a key enabler will be our improved capacity to use diversified feedstock, including material coming from curbside recycling. As supply is scarce for resins such as PP and flexible PE, the CPT will use these findings to inform the next steps of its journey towards the design and implementation of pilot projects to advance the use of food-grade PCR for those resins with an unfulfilled circularity potential.

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