

CCES 2025 Session Summary

Designing for Loops: Products & Packaging Fit for a Circular Economy

This session dived into the principles of circular design, showing how products and packaging can be reimagined to reduce waste and maximize product lifecycles. Attendees gained practical insights into design considerations and innovative best practices, while considering ways to minimize unintended consequences. Delegates learned how to design smarter, more sustainable solutions that fit the circular economy, where every product and package has a second life.

Date / Location: Wednesday, April 16, 2025 / Montreal, Canada

Speakers

- **Curt Cozart**, Chief Operations Officer, Association of Plastic Recyclers (APR)
- **Kent Wootton**, Manager, Circular Material Innovations, Canadian Tire Corporation
- **Brant Wunderlich**, Team Leader – Application Development & Circular Economy, NOVA Chemicals

SESSION SUMMARY

This conference panel featured Curt Cozart from the Association of Plastics Recyclers (APR), Kent Wootton from Canadian Tire, and Brant Wunderlich from Nova Chemicals, who collectively discussed their organizations' pivotal roles in advancing plastics recycling and fostering a circular economy. The session highlighted technical innovations, industry challenges, and the crucial need for collaboration across the value chain.

Association of Plastics Recyclers (APR): Setting the Standard for Recyclability

Curt Cozart initiated the discussion by outlining the **Association of Plastics Recyclers' (APR)** mission to significantly increase plastics recycling throughout North America. APR's core focus is on developing **design guidance for plastics packaging** that ensures compatibility with existing recycling infrastructure.

Core Principles and Advocacy: APR operates from the perspective of the recycler, emphasizing the need for both increased material supply and robust demand for recycled content. This drives their policy stances:

- **Extended Producer Responsibility (EPR):** APR actively supports EPR initiatives to boost the collection and availability of recyclable materials.
- **Post-Consumer Recycled (PCR) Content Legislation:** They advocate for laws mandating PCR content, which is vital for creating market demand for recycled plastics.

Broad Membership and Influence: With 309 member companies, APR's reach extends beyond just recyclers to encompass the entire plastics value chain, including resin producers, brand owners, component manufacturers, and even specialized suppliers like adhesive and ink producers. This broad representation allows APR to influence over 90% of post-consumer plastic packaging manufacturing in North America.

Key Design Tools and Programs: APR offers several critical tools to guide the industry:

1. **APR Design Guide for Plastic Recyclability:** This foundational document provides technical guidelines for recyclability. It's a "living document," continuously updated by technical committees of industry experts, reflecting real-world recycling capabilities from curbside collection through sorting, washing, and cleaning. APR actively collaborates with Producer Responsibility Organizations (PROs) in Canada and the US to ensure alignment and prevent confusion. The guide is internationally recognized, referenced by major organizations like the Ellen MacArthur Foundation and the US and Canada Plastics Pact, and is even embedded in California law. APR has global Memoranda of Understanding (MoUs) with entities like RecyclaClass in Europe (achieving 97% alignment) and ACOs in Mexico, and is pursuing an MoU with the Chinese Plastics Recycling Association, signifying its global influence. The guide is also available in French.
2. **Design Guide Training Program:** Recognizing the increasing complexity of the Design Guide, APR provides training programs to help companies effectively interpret and implement its detailed guidelines.
3. **Design Recognition Program:** This certification program allows companies to validate their packaging or design features against APR's guidelines. It includes a "critical guidance program" for new innovations requiring rigorous testing and a "preferred design recognition" that can be applied incrementally from individual components (e.g., inks, adhesives) up to complete products, offering supply chain assurance.
4. **PCR Certification Program:** This ISO-compliant program certifies post-consumer recycled content, aligning with Canadian and European standards. Crucially, it exclusively certifies **PCR** (post-consumer recycled) material, excluding post-industrial recycled (PIR) content, to ensure consumer trust in the "recycled" claim. It also mandates a strict **chain of custody** to verify that the plastic was genuinely recycled, preventing the use of free allocation models.

Industry Engagement: APR actively engages its members through various training initiatives, including "lunch and learn" sessions and intensive eight-hour workshops for diverse teams involved in packaging decisions (engineers, sourcing, marketing). These programs are highly popular, with some companies sending hundreds of employees repeatedly to enhance their design-for-recyclability capabilities.

Canadian Tire: Actioning Circularity Across a Vast Retail Network

Kent Wootton highlighted Canadian Tire's proactive approach to circular material innovations, emphasizing their commitment to tangible action rather than just discussion.

Scale and Brand Portfolio: Canadian Tire is a massive retail entity, extending beyond its namesake stores to include Atmosphere, Mark's, SportChek, and over **110 private brands** (e.g., Noma, Canvas, Mastercraft). This extensive brand portfolio allows Canadian Tire to significantly impact the market. The company prioritizes partnerships with Canadian businesses, strengthening the national economy.

Key Initiatives and Examples of Circularity:

- **Tire Recycling:** In Ontario alone, Canadian Tire recycles over **700,000 tires annually**, ensuring none go to landfills. They actively seek to reincorporate this recycled rubber into their products.
- **Closed-Loop Packaging:** A notable example is the "Golf Green" grass seed bags, which incorporate **30% recycled content** derived from plastic bags collected from Mark's stores, demonstrating a successful circular system.
- **Sustainable Packaging Standards:** Canadian Tire has implemented clear sustainable packaging standards for all its global vendors. These standards prohibit certain problematic plastics (e.g., PVC, polystyrene, PETG, mixed plastics, bioplastics) to encourage **mono-material design** and reduce contamination, driven by both environmental goals and the financial implications of producer responsibility.
- **Canadian Partnerships:** Canadian Tire showcased successful collaborations with Canadian companies:
 - **Eco Tank:** Through the Canada Plastic Pact Accelerator, a bulk refill program was expanded, eliminating over 28,000 jugs for windshield washer fluid in a few months.
 - **Ice River Sustainable Plastic Solutions:** Canvas brand chairs are made from **34,000 recycled pop bottle lids per chair**, sourced and manufactured in Canada.
 - **Multi-Home:** An umbrella stand for the Canvas brand made from Canadian-sourced recycled plastic.
 - **EFS Plastics:** An oil pan, traditionally made in China, was transitioned to Canadian manufacturing using Canadian recycled content.

Internal Commitment and Collaboration: Kent co-chairs the Canada Plastic Pact's Working Group on increasing recycled content. In a short video played during the session, Heather Lam, AVP of Product Development at Canadian Tire, highlighted additional efforts:

- **Process Integration:** New internal procedures embed sustainable strategy and claims visibility early in product development.
- **Mandatory Training:** Comprehensive learning modules and workshops equip teams to design products with sustainability in mind from conception.
- **Pilot Programs:** Initiatives like free jacket repair services extend product life and inform future design improvements.

Canadian Tire stresses that these initiatives are deeply embedded in their operations and rely heavily on **partnerships and collaboration** across internal teams and external vendors.

Nova Chemicals: Polyethylene, Functionality, and the Future of Packaging

Brant Wunderlich of Nova Chemicals, a polyethylene manufacturer, focused on their role in designing for circularity, particularly for flexible food packaging.

Overview and "Four Pillars": Nova Chemicals produces both new and recycled polyethylene pellets, used in diverse applications from food packaging to toys. They recently launched a plant dedicated to recycled polyethylene for flexible packaging.

Brant outlined his "four pillars of packaging of the future":

1. **Functionality:** Packaging must effectively protect products and extend shelf life.
2. **Lightweighting/Source Reduction:** Minimizing material use, a long-standing business objective.
3. **Mono-material Design:** Designing packaging from a single type of plastic resin to improve recyclability.
4. **Inclusion of Recycled Content:** Incorporating post-consumer recycled materials.

The Intricacies of Flexible Packaging: Brant detailed the common flexible pouch structure, typically involving a PET print web and a PE sealant web. This multi-material approach has been favored for its wide processing window and operational stability. Nova Chemicals is now intensely focused on **eliminating PET** to create **all-polyethylene (mono-material)** pouches, which align with APR's recyclability guidelines. This requires significant technical innovation (e.g., stretching PE to mimic PET's performance) and systemic changes across the supply chain.

The Imperative of Collaboration: Brant underscored that **collaboration** is the most critical "building block." Technical solutions alone are insufficient; success hinges on involving all stakeholders—resin suppliers, film producers, converters, and brand owners—to ensure seamless implementation.

Scaling Recycled Content: To meet the high demand for quality recycled content, Nova Chemicals' **Connersville Flexible Recycling Plant** produces over **100 million pounds of recycled polyethylene annually**. This material, currently sourced from **back-of-store stretch and shrink film** (industrial waste), aims to provide high-quality feedstock for new packaging.

Panel Discussion and Audience Q&A: Navigating Challenges

The panel engaged in a Q&A session, addressing critical industry challenges.

Challenges in Implementation:

- **Pace of Change:** Brant noted that progress, while significant, isn't fast enough, often hampered by the industry letting "perfect be the enemy of good."
- **Lead Times and Cost:** Kent highlighted the long lead times in retail (up to 12 months) and the constant negotiation of costs. Both Canadian Tire and its vendors must make concessions to ensure fair, long-term partnerships.

Corporate Commitment and Cost:

- Canadian Tire's sustainability efforts are driven by **public ESG commitments** to investors. They challenge their buying teams to negotiate costs, viewing recycled content as a long-term strategy for their brands.
- Brant acknowledged that early innovators often bear higher costs. He believes businesses that delay action due to cost will ultimately lose market share, while collaboration can help distribute these costs.

Consumer Value and Pricing:

- Consumer research shows a favourable response to recycled content, but Kent cautioned that there's a **limit to how much extra consumers will pay**. This necessitates careful pricing to avoid deterring sales. Price sensitivity can also vary by product category (e.g., camping vs. automotive).

Chemical Recycling vs. Mono-material:

- When asked if Nova would prefer chemical recycling for multi-layers, Brant stated a preference for **mechanical recycling where possible, and chemical recycling where necessary**, due to the lower energy input of mechanical processes. He noted that a "magic box" chemical recycling solution doesn't yet exist that is economically or energetically superior.
- Curt added that the APR Design Guide favors materials that can be "liberated" and separated. Multi-layers are difficult for chemical recycling as processes often specialize in specific polymer types, and polymers like HDPE and PET are challenging to process together.
- Both agreed that a scalable delamination technology would be a game-changer.

Canadian Manufacturing of Recycled Products:

- Kent confirmed that the **majority of Canadian Tire's new recycled content initiatives involve Canadian companies**. They leverage their internal waste streams (e.g., tires, Mark's bags) to expand in-country recycling efforts beyond regulatory requirements.

End Product for Recycled Pouches and Feedstock:

- Brant explained that the flexible recycling stream is currently heavily contaminated. Nova's Connersville plant primarily uses **back-of-store stretch and shrink film** (industrial waste). While a pure stream of mono-material pouches could be recycled into new pouches, current curbside collection of flexibles remains highly contaminated.
- Curt elaborated on the immense challenges of recycling film: its high surface area-to-weight ratio makes cleaning difficult, it's hard to sort due to its light weight, and its tendency to "bridge" in silos complicates material handling and storage. Film and flexibles are currently the most challenging materials to recycle.

Closing Remarks

- Both Kent and Brant concluded by emphasizing the critical role of **collaboration** across the value chain.
- Despite the significant technical and economic challenges, they expressed strong **optimism** that these problems will be solved, allowing the industry to continue delivering essential products with increasingly sustainable packaging solutions.