SUCCESS CASE

GCR
Innovating our sustainable tomorrow

High–performance mono PE liquid pouch with 50% PCR content and designed for recyclability*

Through CICLICNXT®, GCR delivered high–quality PCR with the consistency required for demanding liquid packaging applications.

Challenge

Flexible liquid packaging is one of the **most technically demanding** uses for polyethylene (PE). It must deliver a combination of stiffness, durability, and reliable sealing performance across every stage—from converting and filling to distribution and final use. Because of this, there is very little tolerance for inconsistency; **even small variations can affect package integrity, product shelf life, or consumer trust.**

Adding post-consumer recycled (PCR) material **increases this complexity further**. PCR may introduce fluctuations in mechanical performance, visual quality, and processing behavior, **making it harder to consistently achieve the standards required for liquid applications**. At higher inclusion levels, PCR can also influence seal strength, clarity, and orientation performance, partly due to a greater presence of LDPE.

50%
post–consumer recycled content

Mono–PE structure designed for recyclability*

High packaging integrity

Excellent sealability

Solution

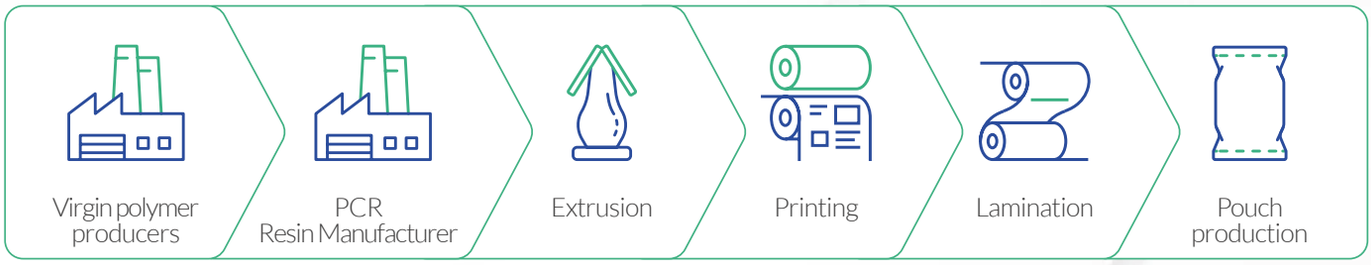
To meet the challenges of liquid packaging with high levels of PCR, a cross-functional **project** team was established, combining expertise from across the entire value chain.

- **GCR** brought CICLICNXT® **high-quality PE PCR** suitable for flexible packaging applications, **providing the consistency needed** for this demanding application.
- **ExxonMobil Signature Polymers** contributed **high performance virgin PE** resins engineered to balance processability, mechanical performance, and consistency when blended with PCR.
- **Crocco** extruded the films, **creating a high performance film with PCR inclusion.**
- **SCEA Flexible Packaging** applied its extensive experience in **printing and converting** to ensure the structure could be produced at scale and meet market requirements.

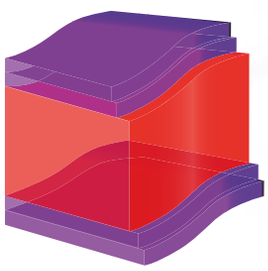
Together, the team developed a **mono PE laminate comprising a PE substrate film and a PE sealant film**. The structure incorporated **50% PCR** while maintaining the functional performance required for **liquid pouch applications.**

Results

By carefully combining the performance of virgin polymers with high quality PCR, the structure demonstrates how advanced resin design can help overcome traditional trade offs between incorporating recycled content and packaging performance.



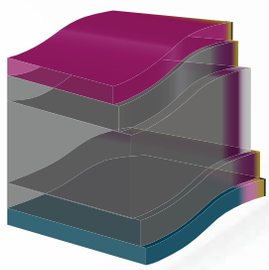
This project highlights how coordinated efforts across the value chain can help drive more **circular packaging solutions.** Combining capabilities in polymer science, PCR consistency, film extrusion, and printing, ExxonMobil Signature Polymers, GCR Plastic Solutions, Crocco, and SCEA Flexible Packaging reworked an established **packaging format to deliver the necessary safety and performance standards while continuing to meet end-user expectations.**



Substrate film

Thickness: 30 µm

- Exceed™ Stiff+ m 0938.RA
- Exceed™ Stiff m 1327.RA
- ExxonMobil HD 6207.FL
- Antiblock



Sealant film

Thickness: 145 µm

- Exceed™ m 1018.RB
- CICLICNXT® PE PCR
- Exceed™ Tough+ m 0516.RL
- Exxtra™ Seal POP 2008.RA
- Exceed™ Flow m 0520.RE
- White masterbatch
- Slip additive
- Antiblock

The innovative pouch designed for recyclability* demonstrated excellent performance in terms of final pouch properties such as an excellent survival rate of 100% dropping from typical shelf heights of 2m. This is achieved by combining high quality PCR with high performance booster virgin polyethylene from ExxonMobil Signature Polymers.

**Designed with features intended to support recyclability. Actual recyclability depends on factors such as local collection, sortation, and recycling infrastructure, as well as the condition and configuration of the film after use. However, access to facilities that accept and process plastic film is limited and not widely available. Data from tests performed by or on behalf of ExxonMobil.*