

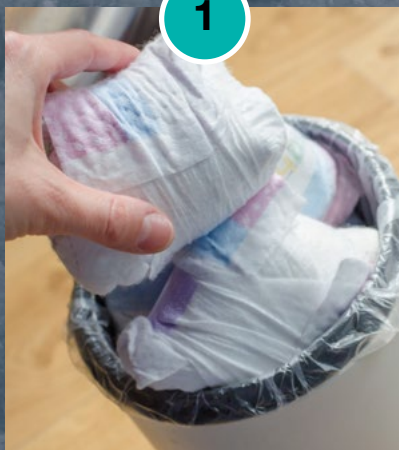
The journey toward diaper recyclability

The context

As part of our sustainability strategy, Dow is committed to advancing circular solutions through an extensive innovation portfolio. Our focus includes design for recyclability, mechanical and advanced recycling, and bio-circular plastics. Our ambition is to lead the development of circular solutions with a low-carbon footprint.

The challenge

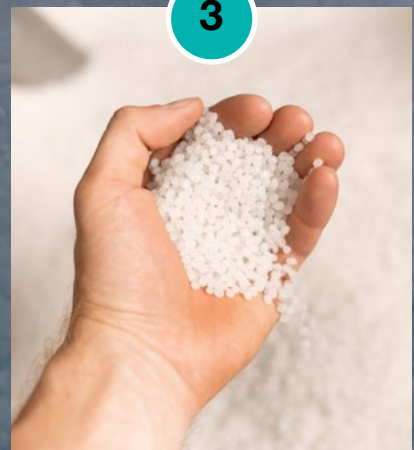
Recycling absorbent hygiene products (AHPs) presents unique challenges. These include the need to deactivate the superabsorbent polymer (SAP), shred complex structures, and separate materials effectively. Multi-material diapers require multiple separation streams for the cellulose, superabsorbent polymer and plastics. The resulting plastic fraction from diaper waste is also composed of very different plastic materials. The resulting plastic recycle thus often lacks the quality needed for new applications.



Human/biological waste



Complex structures/recycling



Lower quality recycle/
post-consumer recycle
(PCR) content

Our answer

At Dow, we believe that moving toward mono-material diapers is the path forward by **combining sustainability, performance and excellent comfort**. Dow's broad portfolio of innovative polyethylene solutions helps to advance toward that vision, as illustrated below. By replacing the conventional, complex **multi-material system with a high PE content**, the diaper could be further enhanced as designed for recyclability while offering extreme softness properties to the final article.

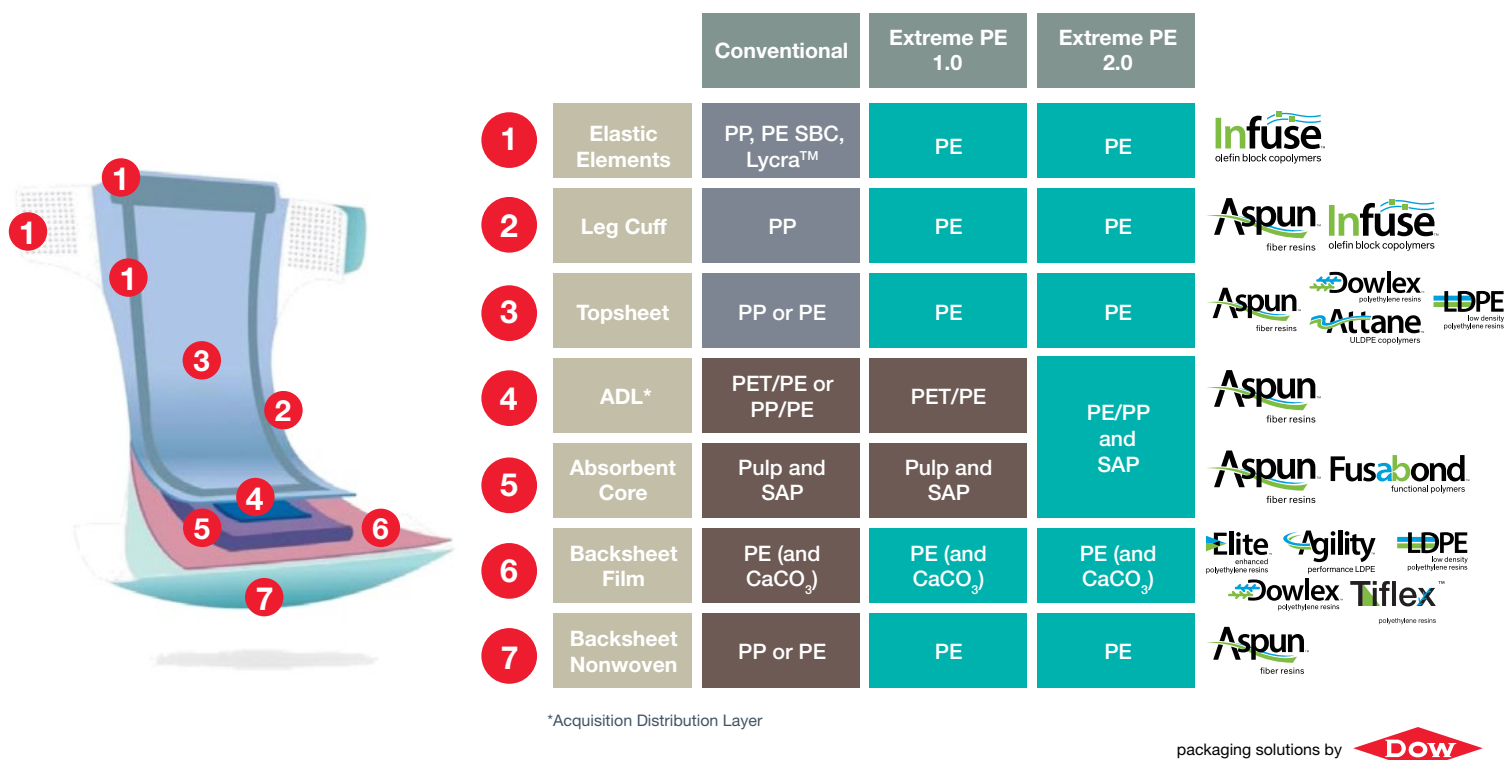


Figure 1: Extreme Polyethylene 1.0 and 2.0 Absorbent Hygiene Products (AHP) with Dow's broad in all the AHP components.

To evaluate the performance of the plastic fraction of diaper waste, the mechanical properties of a simulated plastic mix, representing conventional diaper composition with SAP and cellulose simulated contamination ("Incumbent" in Figure 2) was compared to those of a mono-material alternative ("Alternative") with and without SAP simulated contamination. The results showed that an all-PE (+CaCO₃) solution offered exceptional strain at break properties compared to an incumbent multimaterial diaper system, improving the quality of the final recycled material when considering a perfect separation from the SAP and cellulose.

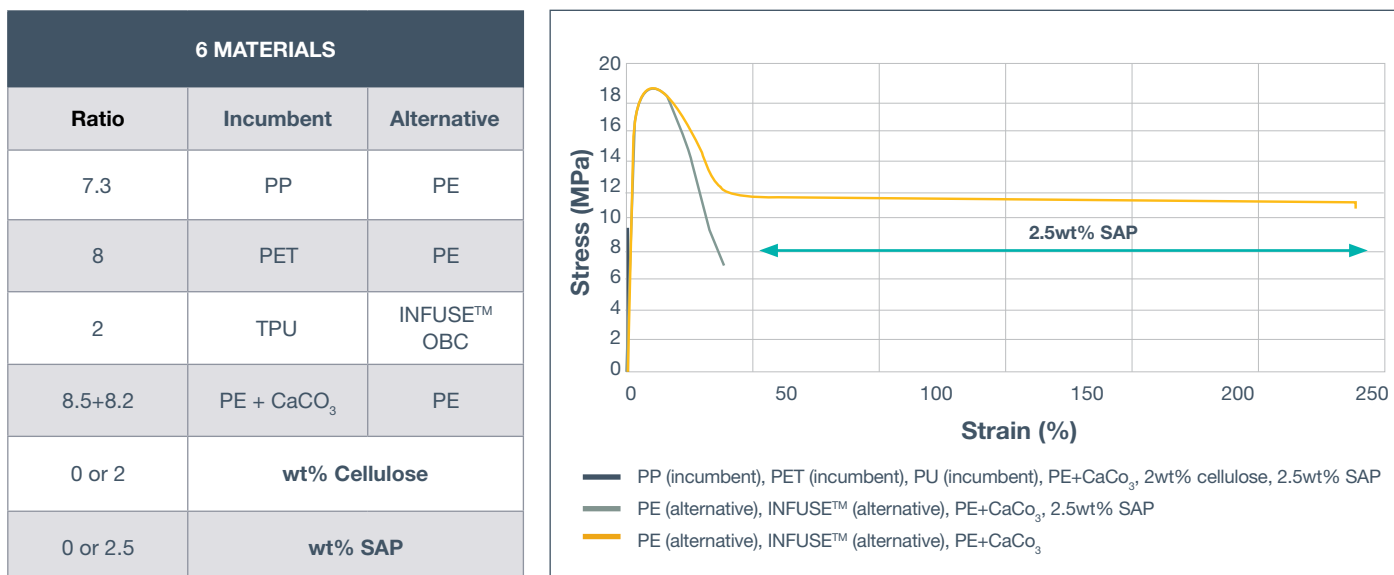
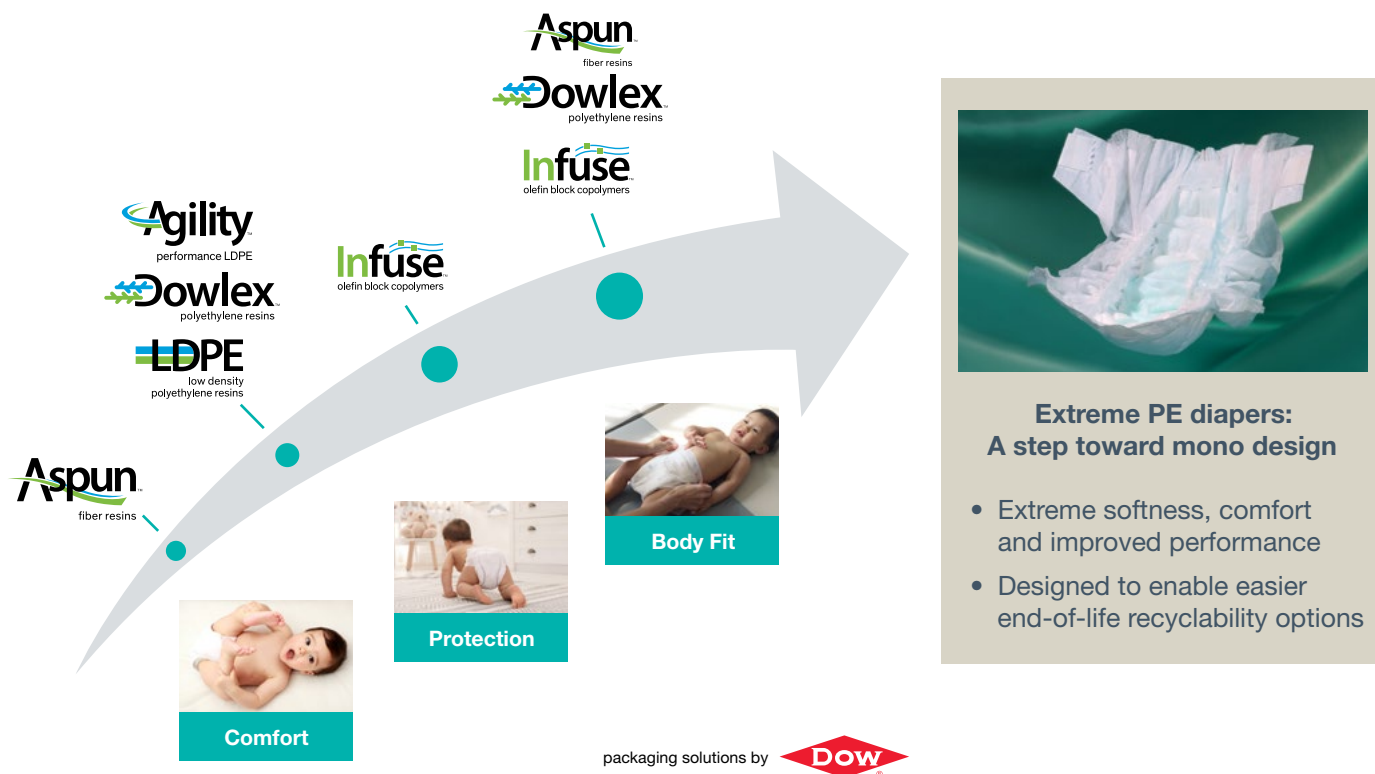


Figure 2: The all-PE (+CaCO₃) demonstrates exceptional strain at break properties.

*Typical values, not to be construed as specifications. Users should confirm results by their own tests.

The journey toward mono design

Our mono-material PE diaper development is aimed at bringing multiple benefits to the industry: **improved softness, comfort,** and **performance**, along with **easier end-of-life recyclability** options.



Extreme PE diapers represent a step toward fully recyclable hygiene articles. By simplifying construction with readily recyclable, mono-material PE components, Extreme PE diapers can help streamline the recycling process and reduce scrap and waste.



Together, we can make it happen

We believe that working closely with our customers and the value chain is key to driving innovation, improving hygiene wearables, and creating a positive impact on the future.

We are constantly striving to develop thinner, lighter mono-material solutions designed for recyclability. We are also investing in bio-circular feedstocks and investigating other advanced technologies.

We'd love to hear about your view of how the future hygiene wearables should look like. By joining forces, we can help produce more sustainable, circular hygiene solutions.

Visit www.dow.com or contact your Dow representative to learn more.



About Dow

Dow (NYSE: DOW) is one of the world's leading materials science companies, serving customers in high-growth markets such as packaging, infrastructure, mobility and consumer applications. Our global breadth, asset integration and scale, focused innovation, leading business positions and commitment to sustainability enable us to achieve profitable growth and help deliver a sustainable future. We operate manufacturing sites in 30 countries and employ approximately 36,000 people. Dow delivered sales of approximately \$43 billion in 2024. References to Dow or the Company mean Dow Inc. and its subsidiaries. Learn more about us and our ambition to be the most innovative, customer-centric, inclusive and sustainable materials science company in the world by visiting www.dow.com.

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