



Enhanced fibre based thermoformed 3D objects with the most natural polymer on Earth

Powered by Fibenol Woodcell™
crystalline cellulose



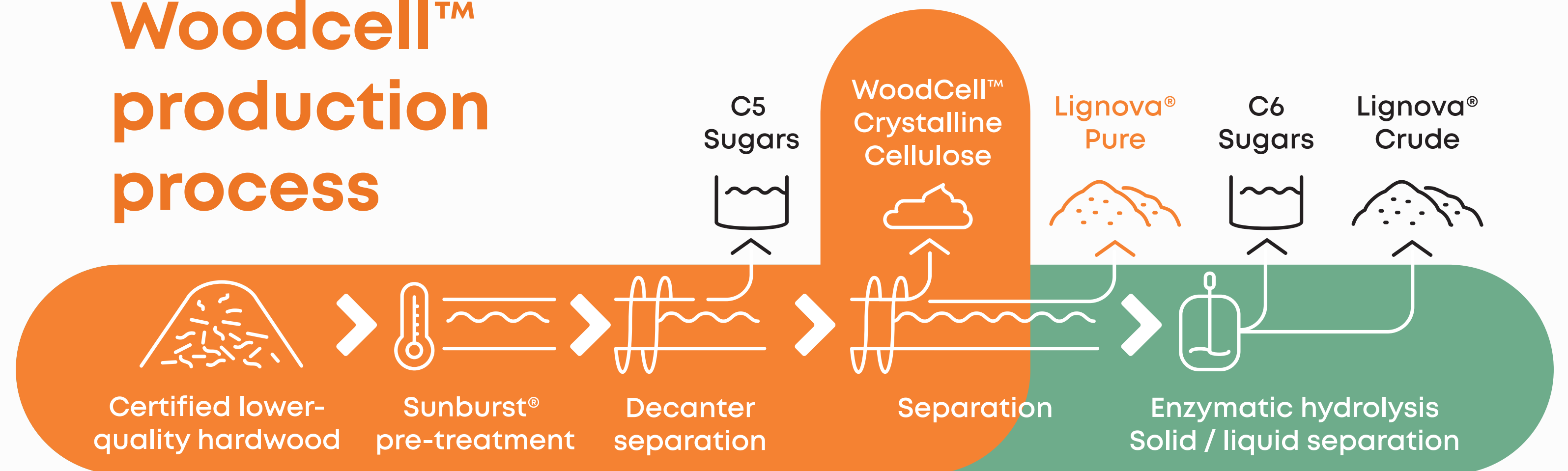
What is Woodcell™ crystalline cellulose?

Woodcell™ is a natural, cellulose-based barrier material developed here in EU by Fibenol and industrially scaled up via Woodcell project.

- ▶ Made from hardwood and plywood industry residues. (Sourced via suppliers operating under certified forest management schemes in Estonia.)
- ▶ Produced using Fibenol’s proprietary Sunburst® technology.
- ▶ Converted into a functional crystalline cellulose based barrier coating.



Woodcell™ production process



Significantly increase 3D strength and rigidity with Woodcell™ crystalline cellulose

From its crystalline shape, Woodcell™ crystalline cellulose brings significant increase of strength of the fibre based 3D object. A small addition of crystalline cellulose in the pulp can bring significant performance.

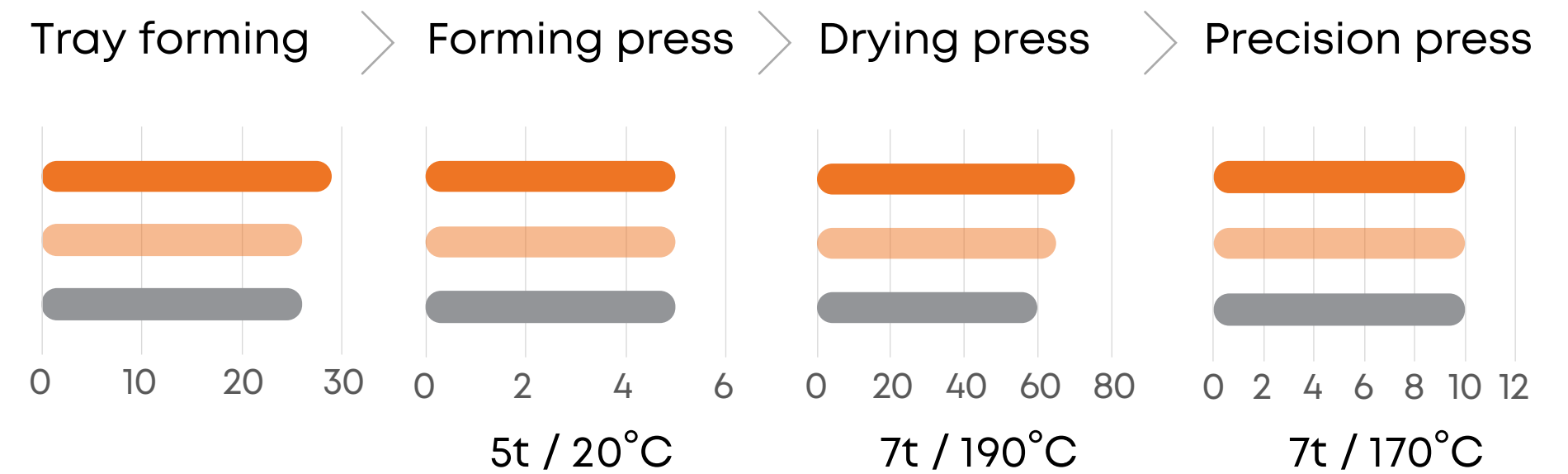
Lightweight up to 20%*, use cheaper pulp source, add more recycled pulp to your mix, reduce refining levels, crystalline cellulose brings flexibility in the way the trays are made.

In addition, the addition of crystalline cellulose doesn't impact water drainage.

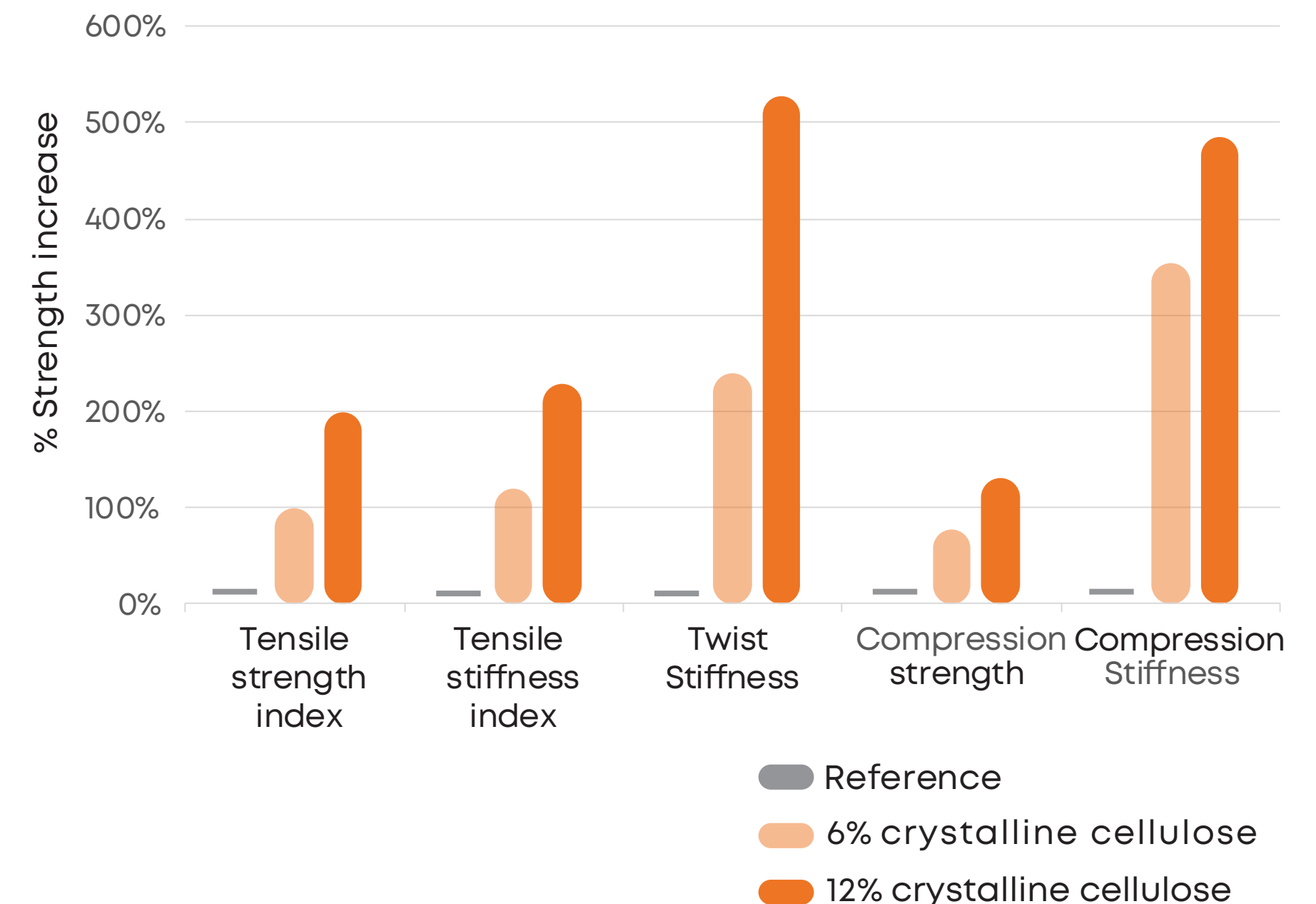


* Performance depends on the original weight of the product

Production steps time (s)



Mechanical properties



Get bio-based barrier with Woodcell™ crystalline cellulose

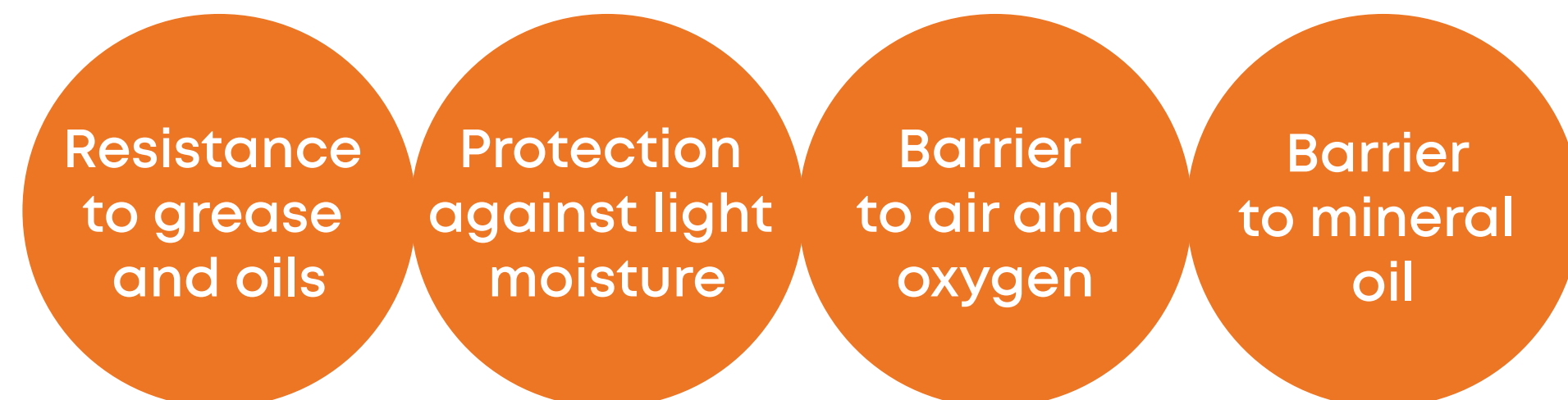
Process effective formulations

With the optimization of the formulation, the barrier layer can be applied using coating various techniques in both wet moulding and dry moulding applications:

- ▶ Spray coating
- ▶ Double dipping
- ▶ Addition in wet end

Barrier performance

WoodCell™ crystalline cellulose provides:



This performance meets the needs of many food service and takeaway applications without compromising recyclability. And enables further use of recycled substrates, which require effective mineral oil barrier.

Why this packaging is different

Compared to conventional barrier solutions, Woodcell™ coatings are chemically almost identical to the fibre network of the carton substrate.

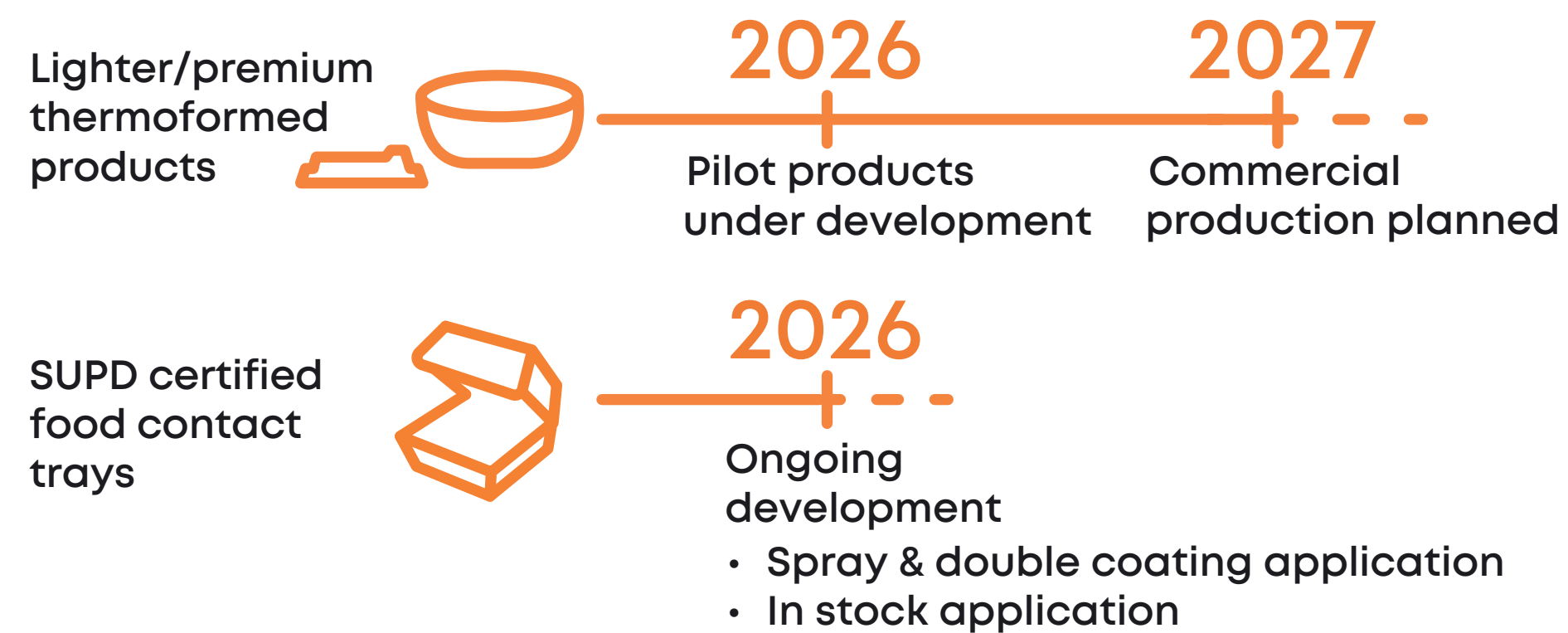
Because Woodcell™ is cellulose, it integrates naturally with the paper matrix instead of forming a foreign polymer layer. Unlike conventional plastic barrier coatings, it does not introduce incompatible materials into the recycling stream.

This makes the packaging:

- ▶ Monomaterial
- ▶ Repulpable within existing paper recycling streams
- ▶ Free from fossil-based plastic barrier coatings
- ▶ Bio-based, and food-contact safe

It also offers a more sustainable and cost-effective alternative to polymer dispersion coatings and PE extrusion coatings in selected applications.

From pilot to scale: product roadmap



Solution through active collaboration



The collaboration through the Woodcell Project brings dedicated experts on pulp, additives and thermoforming technologies. This allows fast product development and optimization.



Business development contacts

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Developed by Fibenol
under Woodcell project

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 **WoodCell Project**
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