KIEFEL
TECHNOLOGIES
A Member of Brückner Group

KIEFEL FIBER PACKAGING

TOURNING YOUR SUSTAINABLE IDEA INTO AN ECONOMIC SOLUTION

DRIVING
YOUR
PERFORMANCE

Kiefel Fiber Packaging

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Changed Requirements of Packaging

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EPR / PPWR Influence

- CO2 Footprint
- Landfill

- Refill Packaging

- Can also be compostable
- Paper Recycling up to 80%

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Cycle of Packaging – Kiefel Supports you in every stage

- Kiefel Supports your cycle with
  - Material R&D
  - Packaging Development / Design
  - Proof of Concept
  - Product validation
  - Scale up solutions

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Cycle of Packaging – Kiefel Supports you in every stage

We provide support through dedicated and skilled teams throughout your fiber journey.

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Start of development – Product Requirements

- **Tub**
  - High barrier properties
  - Complex and deep geometry
  - Stackable
  - Sealable
  - Responsible for shelf live

- **Lid**
  - Low barrier properties
  - Flat geometry
  - Stackable
  - No sealing, just protection

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Available Technologies - find the best fit

- **Wet Fiber**
  - Flexible in geometry in depth
  - Flexible barrier possibilities
  - High cycle time
  - Control from raw material until final product

- **Dry Fiber**
  - For easier and flat geometries
  - Apply of barrier very complex
  - Fast cycle time

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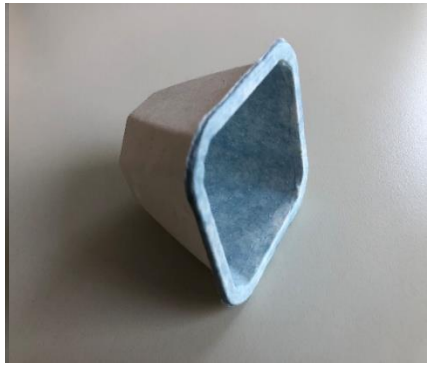
Additional impovement of properties

Internal sizing

- Invisible and easy treatment
- Ideal for water and oil resistance

MFC coating / diping

- 100% Fiber based layer
- Increased barrires for all types



Surface coating

- Coating improves oleophobic properties
- Industrial application is challenging

Film lamination

- Best for long shelf-life
- OTR/WTR close to plastic packaging

Material R&D | Butter Tub – Challenges

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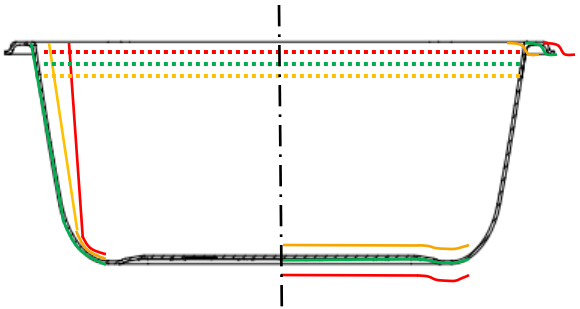
Testing the POC prdoucts



Lamination

vs.

Coating

Material R&D | Product example– Butter Tub

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Packaging Dialogue Days

Is the product ready for up-scaling?

YES

→ Enter next phase with the **KFT 90.1**

- Continue with Up-scaling phase
- Prepare for production
- Initiate Training for your staff

NO

→ Start **new iteration** of feasibility study

- Discussion of the test results
- Define missed targets and fixes
- Improve result during next iteration

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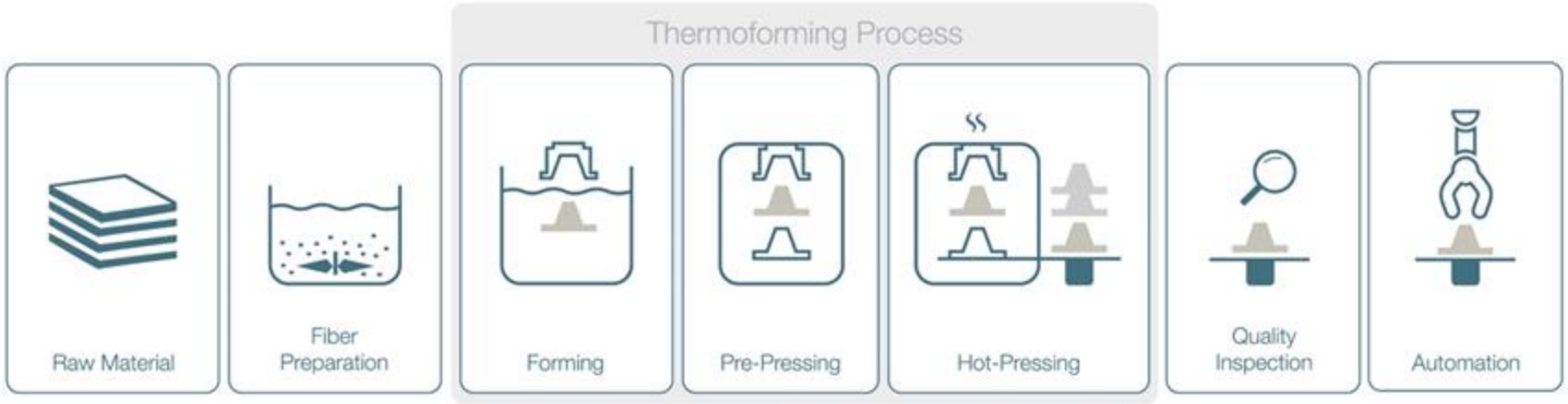
Industrial Solutions – Wet Fiber

Production concepts for Wet Fiber Thermoforming

- Material Preparation part of customers responsibility
- Conistency in production 0.8% - 1.2%



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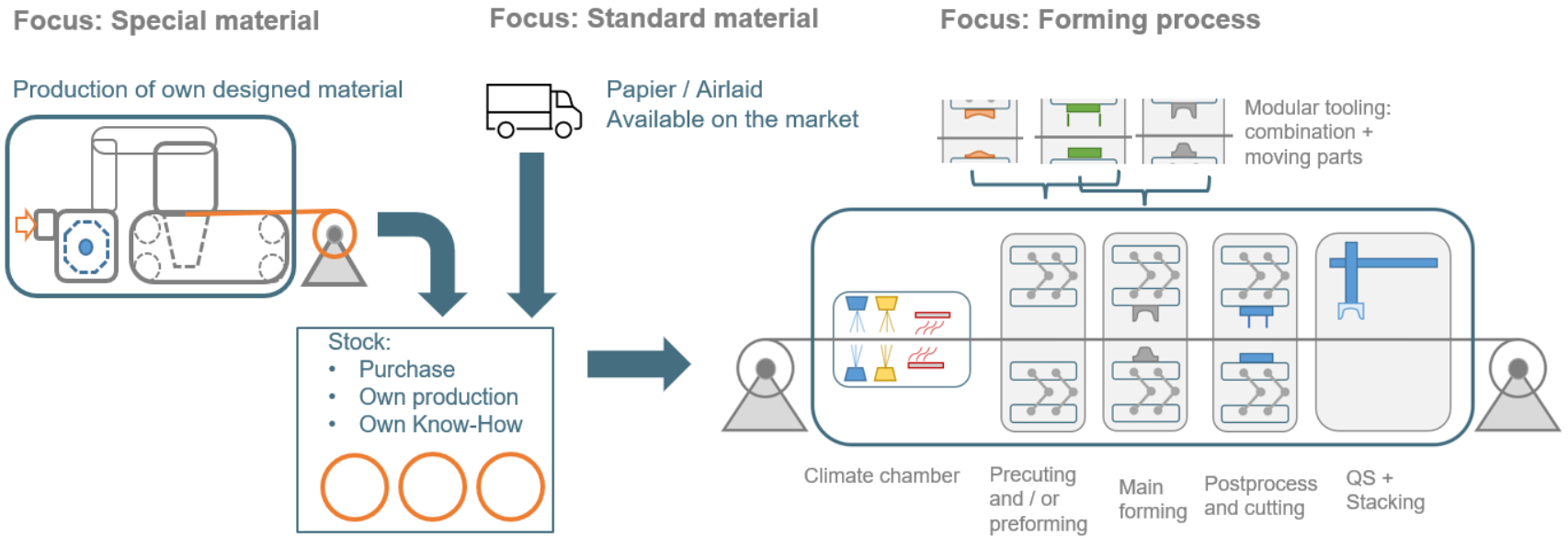
Industrial Solutions – Dry Fiber

Production concepts for Dry Fiber Thermoforming – Paper and Compressed Airlaid

- Separate process: Material supply and forming machine
- Product focus – variation on material and specification



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