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*b*FI

Component Optimization in rPET Processing

In a practical application involving a component made from recycled PET (rPET), Brac-Werke AG successfully demonstrated how the polymeric additive *b*FI A 3745 significantly improves processing.

A joint use case by partners Brac-Werke AG, Nordmann, Rassmann GmbH, and Polytives.

The Challenge

Initially, the part could not be easily manufactured, as the mould could only be filled partially and with compromised quality. Traditional methods, such as increasing injection pressures or significantly raising process temperatures, led to increased stress on equipment and moulds, higher energy consumption, prolonged cycle times, and substantial cost inefficiencies.

Approach

Initially, conventional methods such as raising injection pressure were tested, which succeeded in completely filling the mould but resulted in undesirable overflows at the gate.

Increasing mould and material temperatures was dismissed due to the associated rise in energy consumption and extended cycle times.

Ultimately, the introduction of the polymeric additive effectively improved the flow characteristics, significantly enhancing processability.

Results

The successful application of the processing aid *b*FI A 3745 resulted in approximately a 25 % reduction in injection pressure at a dosage of just 3–5 %. No further adjustments to machine settings were necessary, and the component could be fully filled, adequately compacted, and manufactured according to specifications (see Figure 2).

Advantages at a Glance:

- Optimized processing
- Reduced energy consumption
- Maintained cycle times
- Less material degradation
- Reduced equipment and mould stress
- Consistently stable component quality

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Fig. 1: Influence of the polymer additive *b*FI A 3745 on the injection pressure under consistent machine settings.

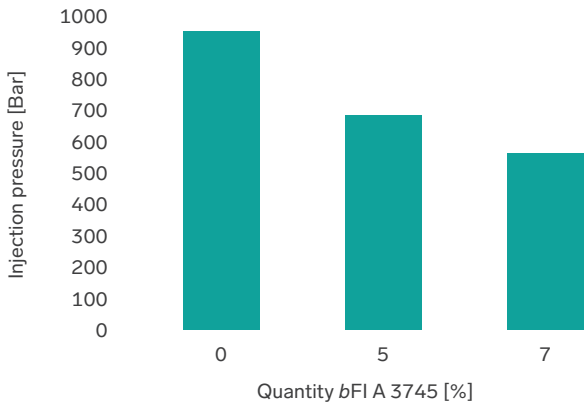
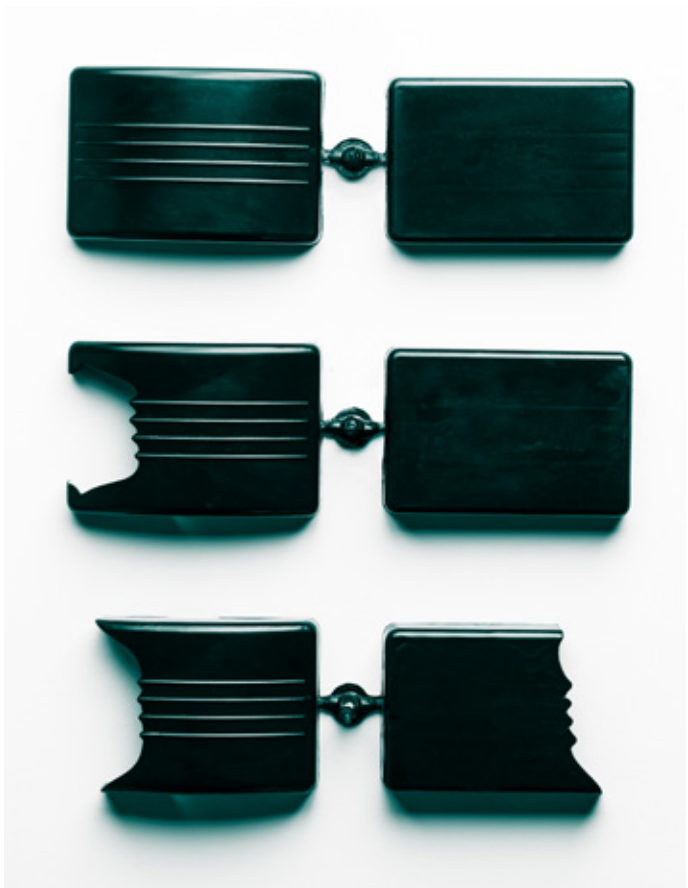


Fig. 2: Injection Moulding Study



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