Holland Colours White Paper

What variables have an influence on bottle production?

Holland Colours Group
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2. Acknowledgements

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3. Feedback

The Holland Colours company appreciates feedback on the information and usefulness of this publication. Please provide feedback at ✉ webinfo@hollandcolours.com.

4. Introduction

One of the many essential topics for brands is how to best combine freedom of packaging design with a high level of barrier properties to protect their product's integrity. An increasing number of products such as milk, yogurt drinks, milk/juice blends and vitamin-enhanced dairy beverages are now being packed in PET bottles with light protection. As the expert in PET packaging, HCA is continuously looking for advancements which provide an opportunity to improve the cost of packaging production. Holland Colours' Holcomer Thermostretch series and FastHeat series provide the solution.

PET packaging offers several significant advantages over traditional packaging, including freedom of design and broader recyclability in today's circular economy. The PET system offers unparalleled bottle production speed on a small footprint combined with simple and quick mold change turnaround times, enabling many different bottle sizes to be produced on the same machine in a highly flexible and economical way.

5. Dairy Applications

The ever-increasing speed of today's bottle blowing systems is, however, limited by the heat absorbance characteristics of the preforms. To protect the product integrity of long shelf life dairy products, a very high level of light barrier is needed that blocks 99% of light or more. This is accomplished by high dosing levels of the Holland Colours Holcomer range - specially formulated additives that provide an attractive white color combined with high light barrier properties over the entire UV and visible light range. The 'Classic' technology that was used up to now, though, limits the absorbance and conduction of the energy radiated by the halogen light preform heating system through the preform wall. This causes large temperature differences between the inside and outside surface of the preforms. The resulting narrower bottle-blowing window causes lower blowing speeds and higher production loss due to longer processing times and more blow-outs than what is normally acceptable.

Another potential issue is that the use of high levels of inorganic pigments is increasingly seen as negatively affecting bottle recyclability. Several countries are in the process of imposing limitations on the amount of inorganic pigments, also expressed as mineral charge. This places even more pressure on the use of high dosing levels of white colorants.

6. A Two-fold Solution

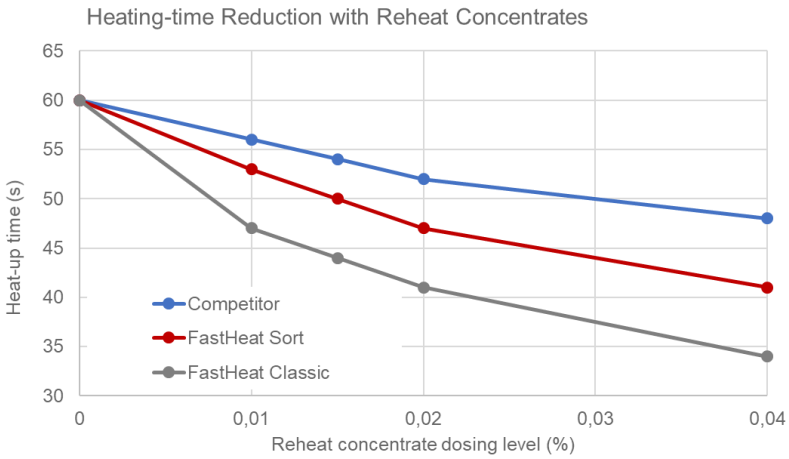
Holland Colours has recently introduced the Holcomer Thermostretch concept. This new development has a much higher opacity and a significant reduction in dosing level of 40% at the same total preform material cost. The reduced dosing level brings down the mineral content to the levels as set out in the new regulations.
On top of this, the heat absorbance and heat conduction has been greatly improved which takes away the blowing output limitations.

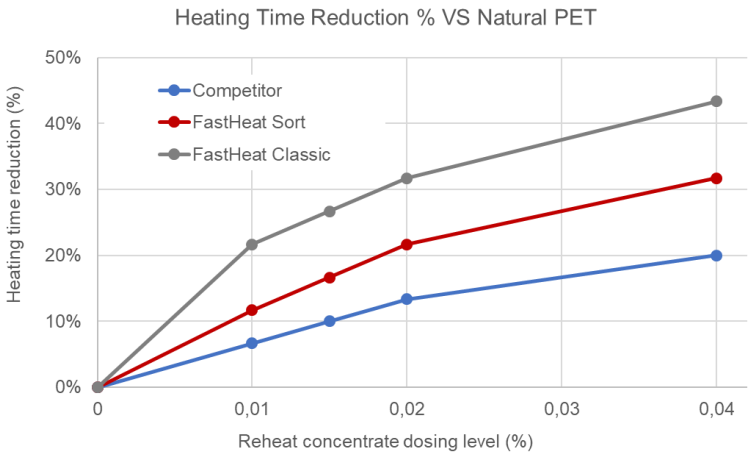
7. Significant cost reductions, guaranteed

This results in an up to 25% higher blowing output and a scrap rate that is reduced to levels that are normally only seen with uncolored preforms, for the same investment, energy and operational cost. The blowing settings are now much less depending on preform design and wall thickness, enabling a broader choice in (existing) preform moulds which may prevent investments in new moulds or costly adjustments to existing ones. The lower scrap rate also generates a significant direct cash-out reduction and the much broader processing window enables shorter start-up times, thereby reducing opportunity cost.
Due to the much lower dosing level, abrasive mould wear is reduced so the preform mould maintenance intervals are further apart. Everything combined with this results in a significantly reduced TCO for preform and bottle production which adds to the already very attractive ecomomics of the PET packaging system.

8. Replication of Knowledge: non-dairy applications

The same in-depth knowledge was applied to the development of our FastHeat range for non-dairy applications. With FastHeat, you can give your bottle production a boost by reducing the heating time and energy needed during bottle blowing.





Holland Colours develops, produces and commercializes solid and liquid colorants, masterbatches and additives for coloring rigid and flexible PVC for the building and construction industry, as well as PET and polyolefins for the packaging industry. Next to serving these global markets, we offer color concentrates for coatings, sealants and adhesives and other applications. Our technical experts are always creating new color solutions to give our customers peace of mind based on precise color match and color consistency.

Holland Colours is a Dutch company listed on the Euronext Amsterdam Stock Exchange. With committed employee shareholders and operations in the Americas, Europe and Asia, we provide personal local service on a global scale.