Visko Teepak

solutions

CASINGS & PACKAGING MATERIALS / ViskoTeepak.com

1 of 4 featured articles

ViskoTeepak's Wienie-Pak Production

This new series delves into the critical steps in Wienie-Pak applications, particularly focusing on hot dog production issues beyond casing.

What does ViskoTeepak do when a situation like this arises?

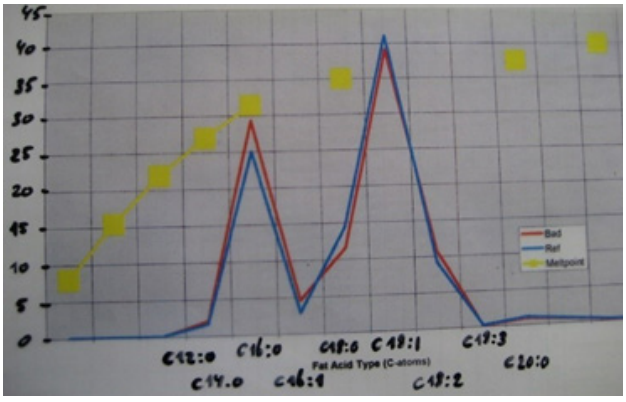
Read more

Uncovering the process.

Recently, four articles were published, highlighting critical steps in fibrous applications and addressing instances where the results failed to meet customer requirements. Below is the first article released by ViskoTeepak within a series delving into hot dog production issues, recognizing that while casing is integral, the scope extends beyond it. The first article examines the end of the process, focusing on emulsion preparation and product heating. Often, when the final sausage deviates from expectations, the underlying cause remains elusive. This article aims to elucidate some of these mysterious mistakes. The second article of this series explores the functionality of Wienie-Pak during the stuffing process, shedding light on its role and potential challenges. The third article discusses pitfalls encountered during the shirring process, while the final article zeroes in on the Wienie-Pak process at the Lommel facility. It's important to note that this series is not driven by advertising motives but rather seeks to uncover and address long-term issues that occasionally surface.

Wrong Fat

Most of our customers make the emulsion with the help of imported frozen fat blocks of approximately 25 kg. These blocks meet a certain number of specs. However, it happens that these fat blocks contain too high level of soft fat – fat with a lower melt point. Lard has a melting point ranging between 26˚C and 40˚C. Back fat, with a high percentage of saturated fat particles shows the same (frozen) view but starting from 45˚ Cel. The alkyl chain length determines partly the melting point of fat. Blue line is as it should be. The red line shows a higher percentage of short alkyl chains inside the emulsion.



Picture 1: Analysis of fat particles in a hot dog. The alkyl chain length determines partly the melting point of fat. Blue line is as it should be. The red line shows a higher percentage of short alkyl chains inside the emulsion.

Picture 2: Pre-grinding at low temperature does not show an indication of fat quality.

When the fat block contains (far) more lard fat than calculated in the recipe, fat separation and even gel separation will be unavoidable. The cellulose casing gives some counter pressure to the emulsion, but fat separation cannot be avoided.

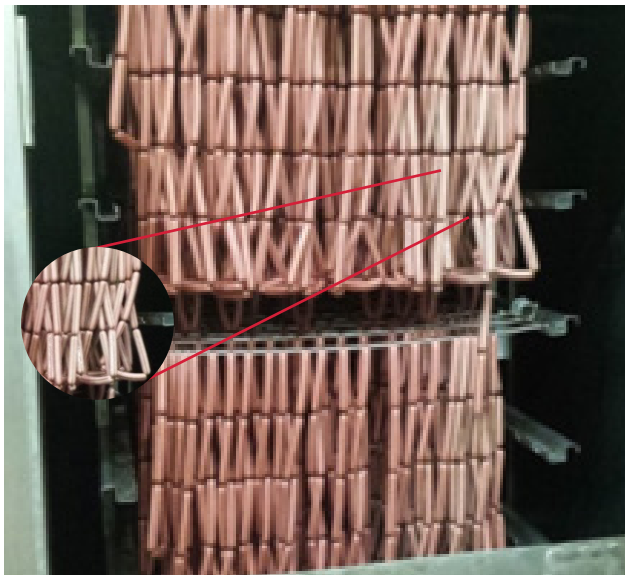
Wrong fat in the emulsion is one of the major reasons of fat separation. However, fat separation can also be caused by processing failures.

1. Over-chopping: Fat is chopped into pieces that are too small (big surface) to be covered by available proteins = fat separation.
2. Meat shortage: Less proteins available to embed fat particles in the meat composition.
3. Heat break-down: By heating the volume of the fat particles expands; they can not be embedded by available proteins.

Picture 3: Melted fat on top on the gel separation is hardened after cooling down.

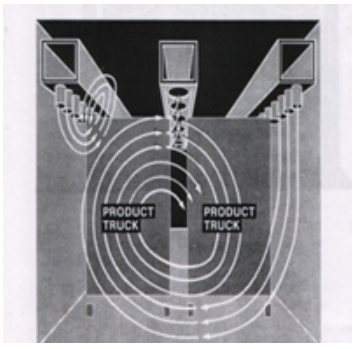
Sausage with different color after processing

The casing producer is often held accountable for inconsistent sausage coloration after processing, particularly evident during trolley cooking in various smoke chambers. Occasionally, part of the sausages in the trolley remain uncolored while others achieve a nice brown hue, prompting customers to attribute the disparity to a specific section of the strand.



Picture 4: Different color on the links after the drying part of the processing time. Some links are darker/lighter than others.

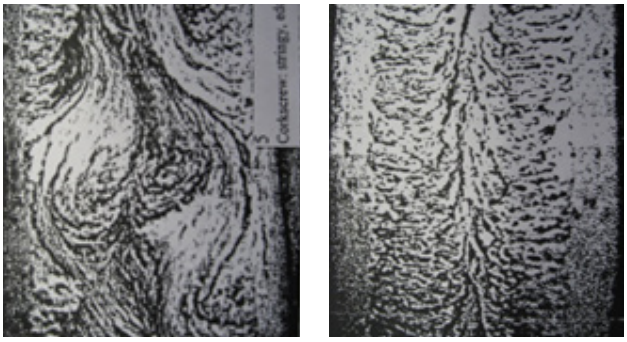
Upon analysis, intriguing conclusions emerged. Sausages subjected to a drying step at 64˚C exhibited a pleasing brown coloration due to the Maillard reaction, a chemical interaction between amino acids (proteins) and reducing sugars. In contrast, sausages exposed to only 45˚C experienced a limited Maillard reaction, resulting in a paler appearance.



The underlying issue stems from the uneven distribution of air input within the cooking chamber, particularly noticeable in older chambers where air velocity fluctuates. Sausages positioned “inside the flow of hot air” were significantly warmer than their counterparts. While prolonging the heating process helps mitigate the temperature variance to some extent, the additional weight loss incurred must be taken into account.

Corkscrew Phenomenon

Last but not least is the phenomenon known as the “corkscrew sausage,” which occurs after reheating the product on the grill. Grillers are often taken aback by the transformation of the sausage from a nicely round shape into a corkscrew-like appearance.



Picture 5: Difference in Quaternary structure among the protein chains.

The flow of the emulsion during stuffing plays a crucial role in determining the internal structure of the sausage. Main reasons for this include surging of the meat pump, usage of a stuffing tube that is too small, leading to swirling at the end of the tube, and sudden changes in the link-stream during hanging.

For example, long protein chains of pork skin will worsen the final outlook.

In conclusion, hot dog production requires careful attention to detail. One major issue is using the wrong kind of fat, which can cause the fat to separate from the meat. This happens when the fat blocks used have too much of a certain type of fat. Another problem is inconsistent coloring of the sausages after cooking, which happens due to differences in temperature and airflow in the cooking chambers. Lastly, there’s the “corkscrew phenomenon,” where sausages twist after cooking, caused by how the sausage mixture flows during stuffing. By understanding and addressing these issues, we can ensure better quality and consistency in these products.

Jos Rutten
Technical Support Manager

Visko Teepak

Always around