CASE STUDY

INNOVATING FOR BETTER PACKAGING OF BAKERY MIXES

PURATOS RELIES ON *SealScope*® SEAL INSPECTION FOR PACKAGING LINES OF O-TENTIC SOURDOUGH MIXES

Delicious bread is a favored element in the daily food consumption of millions of people. Bread is typically prepared with high-value bakery mixes that consist of living ingredients such as yeast. As these need to be protected from oxidation and moisture, the packaging must be perfectly sealed. That's why Puratos has equipped their Vertical-Form-Fill-Seal packaging machines with a *SealScope*® in-line seal inspection system.

puratos
Food Innovation for Good

The Puratos journey began in 1919, just over a hundred years ago. What started as a father-and-son operation in Belgium, evolved into a successful international business. Puratos now offers a full range of cutting-edge services and ingredients to customers in the bakery, patisserie, and chocolate industry worldwide. Today, Puratos employs over 10.000 employees worldwide and has 65 production units in more than 50 countries.

We are zooming in on the Andenne site in the Belgian Ardennes, where high-quality sourdough mixes are produced and packaged for bakeries worldwide. "The site operates 24 hours per day, 7 days per week" explains Paul Rase, Production Manager Sourdough & Grains, "The O-tentic range, based on natural fermentation is renowned for creating breads with authentic taste, texture and flavor."

To produce sourdough, flour is mixed with water and inoculated with lactic acid bacteria, which are selected according to the taste of the bread. During fermentation, the sourdough is fed flour and water to reach the desired consistency. Andenne's sourdough production line allows the liquid sourdough to be dried to increase shelf stability.

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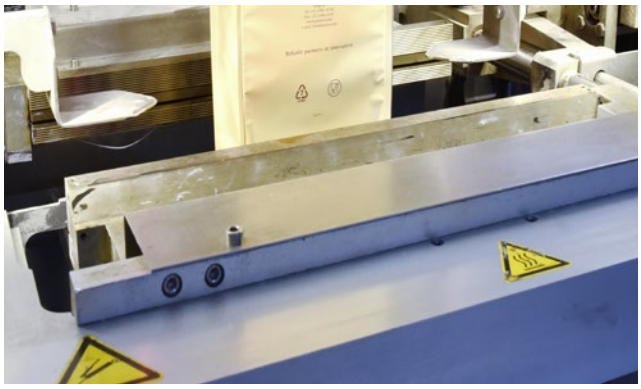
ENGILICO

*The **Seal**Scope® system is fully integrated into the UVA VFFS machine and requires no additional space in the packaging line.*



*The **Seal**Scope® sensors detect during each sealing closing whether defects occur, such as material or folds in the seal.*

The drying gives the sourdough an interesting toasted flavour as well. During the drying process, the liquid is transformed into a fine powder used in the production of bread.

Quality is an important value for Puratos, as is their drive to always learn and improve. The decision to invest in seal inspection technology to deliver better packaging to their customers, perfectly fits into this vision of quality and continuous improvement.

Quality and automation trigger the need for in-line seal inspection

The sourdough bakery mixes are packaged in flexible bags of 1 kg or 10 kg on UVA vertical packaging machines. As these are packaged under modified air conditions for long preservation, it is important that the sealing of the bags is perfect. For the bigger bags, a firm horizontal seal is needed to support the heavy weight. The small 1 kg packaging format features tuck-in sides and the seal also requires easy manual opening. This requires extra attention to properly adjust the sealing parameters.

In view of Industry 4.0, the lines are fully automated - from packaging to placing the labeled bags in cardboard boxes, ready for shipment. Focusing on continuous improvement, Puratos was searching for an automated solution for seal inspection. In practice, at the speeds which they are packaging, it is impossible to manually check each bag produced for the presence of seal defects.

And the sealing process, especially with a powdery product, is a challenge as product in the sealing area can result in a defective seal. A costly possibility would have been to check each bag under a vacuum bell to detect leaking nitrogen, but this would have required the use of an additional machine on the production line, taking extra space and adding significant maintenance costs. Inspired by another Puratos plant where chocolate pellets are packaged, the production team of Andenne decided to evaluate Engilico's innovative ***Seal**Scope*® system on a first packaging line. After a successful line audit, a first system was equipped with ***Seal**Scope*® , and shortly after, Puratos decided to also retrofit their new, second packaging machine.

> **" This solution excels in its simplicity of installation and its integration directly on the structure of the bagging machine. "**
>
> Thomas Partiot, Process Improvement Manager

Rejected package due to fold in the seal.

"We were pleased with the Engilico system on our first line, and it was a logical step to also equip our second line with ***Seal**Scope*®. The system instantly detects seal problems and allows us to detect a process deviation as early as possible." explains Thomas Partiot, Process

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Puratos Andenne has fully automated packaging lines

Improvement Manager, "On top of that, this solution excels in its simplicity of installation and its integration directly on the structure of the bagging machine."

Automated seal inspection

As sourdough is a living product that is sensitive to oxygen and moisture, it is essential to have an effective barrier to protect it. Quality control of the seal is therefore of great importance to avoid open or leaking packages. The innovative ***Seal****Scope*® system verifies by means of sensors mounted on the sealing bars whether there are folds or product in the seal which can lead to leaking packages. The entire production is thus automatically verified and when errors in the seal are detected, the bags are automatically remove from the conveyor belt by an ejection system. The rejected products containing defects are reworked, so that there is no production waste and yet the best quality is ensured.

"***Seal****Scope*® is an important element in the quality and value chain. As we are dedicated to deliver our customer the best quality and also because the cost of returned goods due to defective packaging is extremely high, our goal is to deliver 100% inspected packages to our customers," comments Paul Rase.

Optimizing the packaging process using SealScope®

Another important function of ***Seal****Scope*® is the monitoring of the packaging process. Because each package is measured, it is also possible to register trends and deficiencies in the production process. In this way, if the rejection ratio increases, proactive maintenance can be planned. Or the machine can be timely adjusted, which can prevent production of bad packages and production delays.

> **"The main advantages of the *Seal****Scope*® **system are better quality of outgoing production, better control of the packaging process and fewer product returns."**
>
> Paul Rase, Production Manager Sourdoughs & Grains

"A noteworthy example where ***Seal****Scope*® demonstrated its value occurred when an internal mechanical component suddenly broke in the packaging machine." says Thomas Partiot, "As ***Seal****Scope*® instantly indicated a process variation, we could quickly react and investigate the source of the problem."

To get the most out of the equipment it was necessary to have a clear understanding of the capabilities of ***Seal****Scope*® to put in place the right maintenance and use practices. With the support of Engilico as part of a continuous improvement project of the production area, it allowed us to optimize the production process. Before the optimization process, the rejection ratio of defective bags was in the range of 15%, where after optimizing the production lines it is now between 1 and 2%.

"We are very satisfied with the seal inspection installations and believe this has a wide potential in the packaging industry", concludes Paul Rase, "The main advantages of the ***Seal****Scope*® system are better quality of outgoing production, better control of the packaging process resulting in fewer product returns."

More info on Puratos : www.puratos.com
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