Inspection of seawater-based nasal sprays

The **Laboratoire de la Mer** company in Saint-Malo, France, is among the market leaders in the seawater nasal spray sector. Unique production methods preserve the richness and benefits of the natural seawater that is extracted directly from the local Saint-Malo bay. The world-famous French manufacturer's innovative medical devices allow the products to be easily and, at the same time, safely and comfortably applied to the cells of the nasal mucosa.

Application report

WIPOTEC

Laboratoire de la Mer in Saint-Malo

/ Over 30 years of expertise

The plant in Saint-Malo produces two types of bottles in different sizes for the ENT sector: PET sprays and aluminium sprays, without propellant (patents of Laboratoire de la Mer), hold the product in its most natural form – based on a formula that is completely free of preservatives. As early as 1988, Laboratoire de la Mer developed nasal sprays with 100 % seawater, which clean the nose and improve breathing in the case of colds, acute sinusitis or chronic rhinitis due to viruses or bacteria.

For quality assurance of its products, the company relies on X-ray scanners, checkweighers and the production data management control solution Comscale4 from Wipotec in its production lines. Laboratoire de la Mer uses 100 % reliable product inspection to protect the reputation that it has built up over decades and maintain the consumers' trust in its products. ▲

Our customer
Laboratoire de la Mer

Laboratoire de la Mer is a pioneer in marine science. In the heart of the bay and thanks to privileged access to an offshore extraction point, we have developed our unique expertise regarding the valorisation of sea and algae.

Year established: 1988

Place: Saint-Malo, Bretagne

Products: Nasensprays

Further information:
www.laboratoiredelamer.com

laboratoire de la Mer

/ **Safe transport** in the product inspection systems

The larger bottles in particular have a high centre of gravity. This is due to their liquid content combined with the shape required for application and makes them particularly unstable. The products, however, must be stable while being transported on production lines and inspection systems.

With a throughput of 140 pieces per minute, Wipotec checkweighers and X-ray scanners inspect the products after the filling process and reliably reject non-compliant products (products with incorrect weight or quality defects).

Weighing unstable products at high-throughputs

Wipotec checkweighers with a star wheel are specifically designed to dynamically weigh unstable cylindrical products with a high centre of gravity, such as the plastic and aluminium bottles of Laboratoire de la Mer.

These checkweighers can be positioned anywhere on the existing production line. In actual fact, the star wheel which guides the product is mounted above the production line and, as a result, there was no need to either shorten or modify Laboratoire de la Mer's production lines in order to integrate the checkweighers.

The star wheel safely transfers the products from the production flow to the checkweigher. The bottles are separated, weighed individually and then returned to the production line. At Laboratoire de la Mer, the star wheel is a dual-lane design enabling a throughput of 140 pieces per minute. **>>**

Checkweigher HC-A-IS-D with a star wheel from Wipotec

The inspection based on the X-ray images obtained by the HD-TDI camera is carried out with the highest reliability and so quickly that the cycle speed of the production lines is in no way restricted.

Luc Snyders
Responsable Methodes
(Head of Application Technology) at Laboratoire de la Mer

Easy operation, precise weighing results, fast format changeover

The two-piece star wheel can be changed in a few minutes without the need for tools. This makes it easier to weigh different products with a wide variety of formats. Rapid changeover of the format parts keeps downtimes very short. Menu-driven operation via a 15" colour display with touchscreen also helps. Legal for trade 100 % individual product weighing (MID) ensures that all weight errors are detected. There is no need for manual re-inspections with laboratory scales or random checks. The use of high-tech Weigh Cells from Wipotec, which work on the principle of electro-magnetic force restoration (EMFR), guarantees precise weighing results even at high throughput. Under- or overweight products are reliably rejected.

Hygiene is top priority

At Laboratoire de la Mer, product inspection is not limited simply to weighing the individual products. The plastic bottles have a complex inner structure which ensures product quality and sterile delivery of the seawater solution. The solution does not contain any preservatives. All foreign bodies (plankton, sand, microorganisms) are removed from the seawater beforehand by filtration. After this, electrodialysis is used to adjust the high salt content of the seawater to the desired salt concentration.

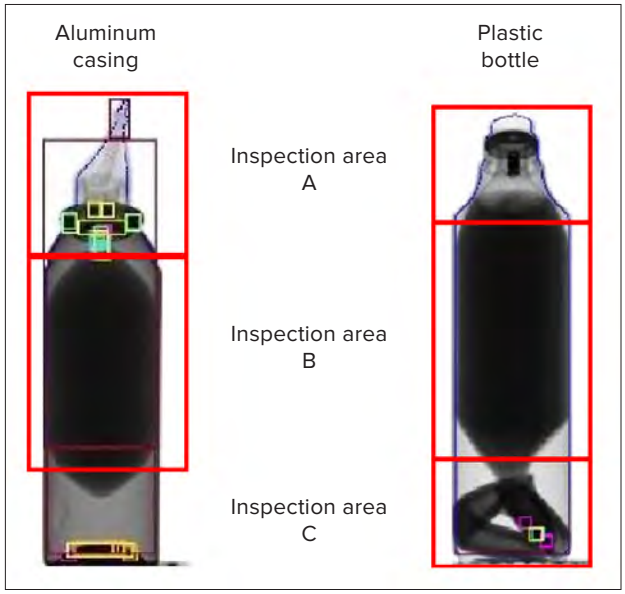
The solution is poured into a barrier system to maintain its microbiological status. Overall, hygiene plays a crucial role throughout production at Laboratoire de la Mer. The filling process is also carried out unidirectionally in a controlled atmosphere. **>>**

Luc Snyders, Responsable Methodes (Head of Application Technology) at Laboratoire de la Mer,
with Jean-Philippe Daniel, Sales Engineer at Wipotec, in front of the HMI of an X-ray scanner at the Saint-Malo site.

X-ray scanner at Laboratoire de la Mer. Adaptation by Wipotec to the specifications of Laboratoire de la Mer, with a single conveyor belt passing through the X-ray scanner, guarantees that unstable bottles are transported reliably and safely during inspection.

Functional reliability: Automatic inspection divided into three different scanning areas.

An X-ray scanner inspection is carried out on 100 % of the filled and sealed bottles which are ready for sale to ensure that the products supplied are properly filled and function reliably. The bottles are designed in such a way that different areas inside them must be inspected separately. The X-ray scanners of the SC-S series with lateral X-ray source (side view) differentiate three areas:



Three different inspection areas of the bottles

First, the upper area of the bottle is checked by inspecting the diffusor and closure (presence and position check). This is then followed by the bottle's middle area where the integrity of the rubber sleeve and the flexible transparent PET pouch filled with seawater is inspected (examination of shape and greyscale intensity). The rubber sleeve ensures that the mechanical pressure, which is necessary for a constant spray jet so that nasal irrigation works correctly, is maintained.

The third area is the bottle base. This is inspected to ensure that the sleeve sits correctly at the bottom of the container and deploys properly in the finished product.

Image processing replaces visual inspection by employees

With the old X-ray inspection system previously used in Saint-Malo, employees had to visually inspect every X-ray image product by product to decide whether the product was intact.

This final inspection was time-consuming and expensive but necessary for 100 % quality control as envisaged by Laboratoire de la Mer for all its products.

As Luc Snyders, Responsable Methodes (Head of Application Technology) at Laboratoire de la Mer, explains, employees no longer need to perform these visual inspections thanks to the installation of X-ray scanners from Wipotec.

The Wipotec inspection systems now carry out these checks automatically. Correct product analysis requires only a fraction of a second due to the software developed by Wipotec for its X-ray scanners and the quality of the images transmitted by the HD-TDI high-performance camera.

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X-ray image of an aluminium spray can

Product inspection at the highest throughput rates

According to Luc Snyders, inspection based on the X-ray images obtained by the HD-TDI camera is extremely reliable and so fast that it does not compromise the cycle speed of the production lines in any way. The X-ray scanners check that the closure and atomiser in the upper area are present and correctly positioned and that the pouch and rubber sleeve in the middle and lower area are intact and in the right place. The sterile solution in the PET pouch cannot be atomised properly if abnormalities are discovered in any one of the three inspection areas. The faulty bottle is rejected to ensure customer satisfaction.

Easy integration of the inspection systems

The Wipotec X-ray scanners used at Laboratoire de la Mer were specially integrated in a U-shaped conveyor area to prevent radiation leaks. This integration avoided the use of curtains and facilitated safe transport of the unstable bottles. The conveyor belts pass continuously and seamlessly through the scanners, thus ensuring perfect transportation of the unstable bottles.

A powered star wheel inside the machine generates the necessary gap after the upstream accumulation table. The customer can change the star wheels quickly and without tools when a product change is imminent. **>>**

Machine used
SC-S

Your benefits:

- The most comprehensive inspection for maximum productivity
- Compact design for ultra-easy integration

Type: X-ray scanner SC-S

SC-S

Comscale4: Collection and analysis of relevant production data

Laboratoire de la Mer uses the web-based production data management solution Comscale4 from Wipotec. Comscale4 networks checkweighers and X-ray scanners, thus providing a complete overview of real-time statistical data for several users at once. Operation and parameter changes are possible via computers connected to the network and via mobile devices.

The checking options offered by Comscale4 makes it possible to graphically evaluate and store statistical data, record images of faulty products and perform online monitoring of all connected production lines. As a result, every department in the company can use the Comscale4 software according to its needs (quality, production, metrology, etc.). ▲

HC-A-IS-D

Machine used
HC-A-IS-D

Your benefits:

- Easy and user-friendly operation to increase efficiency
- Flexible integration in production lines for highest efficiency

Type: Checkweigher HC-A-IS-D

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