/ Quality Assurance of Frozen Tarte Flambée



Flamm Top is France's largest producer of frozen tarte flambée. The hand-plaited edge is a distinctive characteristic and at the same time, an identifying feature of the products which are traditionally handcrafted even today. Production in Sarrebourg, in the French department of Moselle, also includes quiche Lorraine, another specialty of French cuisine. The manufacturer relies on a series of Wipotec networked checkweighers and X-ray scanners; that communicate across all sites via a web-based Quality Data Management software platform. This combination of inspection machine hardware and network software ensures maximum quality of Flamm Top's finished products.

Applikation Report

WIPOTEC



Flamm Top production facility in Sarrebourg, France

/ **French cuisine,** made locally

Tarte flambée has been produced in Sarrebourg since 1986. According to Frédéric Toussaint, the Director of Flamm Top, it all began in the kitchen of his restaurant where up to 100 tartes flambées were produced each day. The first factory was built in the locality in 1988. Appreciated by customers all over the world, Flamm Top products now represent typical products of French cuisine, made locally with ingredients of excellent quality. Seventy-five percent of all products produced are exported. The large number of natural ingredients, such as bacon and onions, mushrooms and fish, pose huge challenges for the manufacturer in terms of comprehensive quality assurance of the finished products. ▲

/Production according to **international food standards**

Producing products for the worldwide consumer market requires compliance with a variety of international food safety standards. It is also required that the manufacturing processes and the products used during manufacturing comply with global food safety standards. Flamm Top produces its tartes according to IFS Food Standard 6.1, a standard for the auditing of food manufacturers recognised by the GFSI (Global Food Safety Initiative). This applies to all food manufacturers regardless of the brand produced. The standards define many different requirements needed for the manufacturer to ensure compliance. The standard is particularly important, especially in those areas in which products are “processed” or where there is a risk of product contamination during initial packaging.

Adopted in 1978, the Hazard Analysis and Critical Control Points standard (HACCP) were the first international regulations for frozen food. HACCP defines standards for safe food production and handling. According to Christian Winger, Head of Production in Sarrebourg, compliance with HACCP standards is another quality tool used at Flamm Top. At Flamm Top, special consideration is given to the fact that the quality-related requirements for a frozen goods supply chain are even higher than is the case for a normal cold chain. For example, the ingredients for tarte flambée and quiche Lorraine require processing with liquid nitrogen at temperatures between −90 °C to −120 °C.

Flash freezing and fast freezing prevent quality losses and the topping ingredients remain individually portionable. The lines have a production output of up to 3,600 finished products per hour. A quarter of the products is destined for the French market under the own brand Maître Pierre while the rest are distributed all over the world in many versions as a French specialty. **>>**

Compliance with HACCP standards is another quality tool.

Christian Winger
Head of Production, Flamm Top



Foreign body detection and checkweighing in one unit: SC-W from Wipotec



Christian Winger (right), Head of Production at Flamm Top, with Alain Huot (left), General Manager of Wipotec France at the SC-W X-ray inspection system with integrated checkweigher

Handcrafted production

With all products, Flamm Top relies on handcrafted production from the hand-plaited edge to topping the products with vegetables, cheese, herbs and other ingredients. The cream or sauces are sprayed on and spread by machine beforehand. So, even in the highly automated production facility in Sarrebourg with an output of more than 100,000 products a day, people are involved at crucial points; a huge advantage but at the same time a challenge for in-process quality assurance. Handcrafted production and the major temperature differences for optimum processing – from frozen to oven-warm product – require regular and precise weight checks. Only by reliably identifying underweight products in good time is it still possible to add to the toppings by hand. The highest value topping is chosen for this purpose to ensure the product's quality. These products are then checked a second time for the total weight to be achieved.

Metal detectors have been replaced

Combined inspection systems have replaced the metal detectors previously used at Flamm Top. The systems in question are Wipotec SC-W inspection systems, space-saving combined systems consisting of checkweigher and X-ray scanner. The systems have separate ejection systems and containers for products of incorrect weight or products that are contaminated with foreign bodies.

Thanks to an integrated X-ray inspection system, these systems not only enable determination of the product weight (with incorrect weight products being ejected immediately) but also identification of any foreign bodies inside the already packaged finished products in a very confined space. It is not necessary to space the products to be inspected in advance as the inspection systems themselves create the gaps required for product inspection.

The systems are also easier to operate as they have a common, integrated user interface. The weighing devices within the inspection systems ensure compliance with the weight limits, which are applicable depending on the country of destination, so that no underweight products are delivered.

Inspection challenge

The X-ray inspection systems at Flamm Top do a Herculean job; 5,000 tons of raw products a year are processed in Sarrebourg. This results in 18 million products which pass through the inspection systems annually. Quality assurance also faces a huge challenge for yet another reason which is based on the heterogeneity of food. The X-ray inspection systems have to deliver top performances because of the different ingredients in the toppings of tarte flambée, onion tart and quiche Lorraine. Due to the different positions they may be in, bacon cubes in particular require high detection rates in order to distinguish them reliably from possible foreign bodies. The inspection of quiche Lorraine is also challenging for a different reason. It is delivered in aluminium foil trays as, unlike tarte flambée, at Flamm Top its pastry is pre-baked in the trays before the quiche is delivered as a frozen product. These containers are hidden by the inspection software to ensure successful inspection.

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The inspection systems, however, not only detect foreign bodies made of metal but also contaminants in the form of small stones, such as may occur in natural products like mushrooms, as well as foreign bodies made of glass or plastics. It was not possible in the past to detect these contaminants with metal detectors. Products in which foreign bodies have been detected are ejected into separate containers so that a targeted reinspection can be carried out to determine the cause of the contamination.

Fast product changeovers, straightforward cleaning

Product changeovers take a matter of minutes as all the weights and recipes are already stored in the inspection systems. Changing over the production line is only a matter of selecting the product number in the software. The system is controlled via 15" colour TFTs with touchscreens which constantly display the current X-ray images in addition to the current product weight. The systems are easy to clean thanks to tool-free replacement of all belts and easily operated covers. The C-shaped product space and bevelled surfaces also contribute to easy cleaning. The inspection systems are made entirely of stainless steel and meet protection class IP65.

Collection and analysis of relevant production data

Comscale4, the web-based Quality Data Management solution from Wipotec, is used at both Flamm Top production facilities in Sarrebourg. The user-friendly software modules network all Wipotec inspection systems across all sites. As a result, Flamm Top can call up all available data and images in real time and generate statistics whenever needed.

The checking options offered by Comscale4 enable graphical data evaluation and storage as well as online monitoring of all connected production lines. Quality assurance at Flamm Top benefits from this in the form of targeted analyses of QM characteristics and random attribute and measuring equipment tests.

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Quiche Lorraine is pre-baked in aluminium foil trays and deep-frozen

The results speak for themselves

Overall, checkweighing and X-ray inspections, performed with the new inspection systems across all stages of production, reduced dough losses to a seventh of the previous level; as a result, product losses and food waste were almost eliminated. For Christian Winger, however, the quality measures at Flamm Top are not only an essential means of optimising the use of high-quality ingredients, such as fresh eggs, bacon, cream and special dough mixtures made with butter (rather than palm oil), that go into the quality products produced in Sarrebourg. Much more importantly, the inspections also substantially minimise the risk of food recalls which represent a significant risk to the reputation of any producer.

The quality of the ingredients has its price; nevertheless, today Flamm Top is the largest manufacturer of frozen tarte flambée in France and for good reason. The combined inspection systems installed in Sarrebourg ensure that the reputation that has been built up over decades, and with it the consumer's confidence in Flamm Top's products, will be permanently preserved. ▲



SC-W

Your Benefits:

- X-ray scanner and checkweigher for maximum product safety
- Easy to operate central user interface

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