Portable measurement device for precisely determining the total viable count

freshdetect®
food safety - fast and reliable

To ensure quality, slaughter and meat packing operations must fulfill stringent process and hygiene requirements. Because government-stipulated microbiological tests are costly and often take days to complete, rapid, cost-effective tests are in high demand. With the freshdetect BFD-100 portable measurement device, for the first time companies can test the quality of meat along the entire process chain within just a few seconds – and with the same degree of accuracy as microbiological tests. The BFD-100 can be used for a variety of applications within the meat industry processing chain:

- Drawing conclusions regarding hygiene conditions during slaughtering and cutting.
- Immediately rejecting of poor quality meat products in the receiving area. Minimal measurement costs make it possible to monitor a vast majority of the products that are delivered.
- Immediately identifying the impact of process changes in storage and cooling.
- Apart from hygiene monitoring, detection of the total viable count also serves to analyze packaging defects.
- In the shipping area, ensuring the quality of products being delivered to the customer.

Testing minced meat using the freshdetect BFD-100

Several potential application scenarios are outlined in detail below.

Slaughtering and cutting

One concrete example in slaughter and cutting operations is when a production is retrofitted or replaced. Because it‘s difficult to ascertain how these changes impact product hygiene, costly measurements are required to ensure the originally-defined best before date can be guaranteed. One option is to establish several “test days” each quarter in order to analyze the microbiological status of the products over the course of one production day. This would include a fixed number of measurements per hour. Relying on existing laboratory methods to determine the TVC rapidly drives up costs, which can be significantly reduced by utilizing the BFD-100.

Receiving

Analyzing the overall quality of a palette - four sets of eight boxes for instance - requires examining more than one box of raw meat. The analysis should include an examination of the parameters defined in the specification, such as fat content, the cut, unusual odors, freshness and adherence to microbiological thresholds. If each of the boxes has 20 cuts of meat for example, the palette contains a total of 640 cuts (4 X 8 X 20). Three boxes then yield 60 cuts of tested meat, or roughly 10 percent of the total palette. At a cost of between € 5 and € 10 to test each sample, this leads to a total cost of between € 300 and € 600 to analyze one palette. If a truck delivers15 to 32 palettes, the costs to analyze the microbiological quality of 10 percent of one shipment can run between € 4,500 and € 19,000. These on-going costs can be nearly eliminated by utilizing the BFD-100.

Storage and cooling

Cooling generates significant electricity costs. The BFD-100 can be used to determine how a temperature increase impacts the quality of the stored meat. Although a microbiological analysis can be used, the number of measurements needed to come up with a statistically-relevant statement makes this method costly. Using the BFD-100, the quality assurance manager can continuously carry out measurements to understand the impact of changing the temperature in the cooling storage - without a delay and without significant additional costs. Furthermore, because the products are not damaged when tested with the freshdetect BFD-100, their value is not diminished.

Cutting and processing

Products are taken from the production process several times a day and then analyzed. The aim is to determine if the monitoring sensors still react properly to foreign objects or whether the requirements for temperature and packing conditions are being met. Since these samples cannot be returned to the processing chain without determining the bacterial burden, they are normally collected and then discarded. Using the freshdetect BFD-100, the bacterial quality can be verified and the product processed with satisfactory results.

Packaging and shipping

In the retail food industry, roughly 10 percent of all food products are discarded because the best before date has expired. A two-day extension would extend the normal seven-day sales period for minced meat by 25 percent and allow the retailer to reduce the amount of discarded meat by 7.5 percent. A typical supermarket runs through around 750 kilograms of minced meat a month. At a price of € 4.50 per kilo, the retailer can then save around € 1,000 per store. However, the only way to extend the best before date is to know the precise bacterial burden of the meat. The freshdetect BFD-100 offers the opportunity to test all products before they are shipped, thus ensuring that the best before date can actually be extended.

Illustration of the freshdetect BFD-100 series product, including all customer benefits.

Summary

The freshdetect BFD-100 makes it possible for the first time to determine the total viable count along the entire meat processing chain with laboratory accuracy, and with virtually no on-going costs. This opens up completely new opportunities for optimizing every step in the process, thus allowing companies to reduce costs in a variety of ways and increase food quality and safety at the same time.

Further information and contact

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