

freshdetect BFD-100 – Revolutionary analysis for food products

World's first portable mini-lab for measuring TPC in meat



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The freshdetect BFD-100 reliably and cost-effectively measures the total plate count in food (currently meat, other products are under development) within seconds. That means for the first time, it's possible to carry out comprehensive and preventive microbiological quality control measures on a quantitative basis instead of relying on conventional time-consuming (2 to 4 days) random sampling (<0,5% in the lab. The product is targeted initially at customers in the meat processing value chain such as slaughterhouses, cutting operations, meat processors and food retailers, as well as cafeterias, restaurants, caterers and food inspectors.

Official market launch is July 1, 2017. The freshdetect BFD-100 was introduced at the Symposium for Rapid Methods and Automation in the Food Microbiology Industry, which was held on June 20 in Lemgo, Germany. (see ad on page 27).

After several spoiled meat scandals over the past decade, the German government called on a research alliance to look into rapid inspection methods that could prevent such incidents.

The researchers demonstrated a relative correlation between bacterial burden and the fluorescence signature. In a follow-up project comprising several small-to-medium enterprises, an initial prototype was developed. In 2013, the project resulted in a spin-off company FreshDetect GmbH, which then developed the same-named device and made it ready for production. The capability of the BFD-100 to measure the total plate count, temperature and color of meat within five seconds with laboratory precision has meanwhile been scientifically validated. (http://www.freshdetect.com/wp-content/uploads/2017/05/20170510_OCM_executivesummary_DE.pdf).

In summary, the BFD-100 combines the following advantages in a single device:

- Real-time measurements (seconds instead of days)
- Non-invasive (non-destructive)
- Functions through transparent packaging films
- Easy to use (untrained personnel can operate the device)

- Replaces subjective sensory inspection (appearance, smell, temperature) with objective measurements
- Lower costs: unlimited measurements at no additional cost
- Close, or even 100 percent, monitoring in receiving and shipping, as well as along the entire value chain
- Portable – can be used anywhere
- Digital output and processing (no paper)

At the end of the day, the freshdetect BFD-100 benefits everyone - including meat cutters and processors, food retailers and the end customer - because it provides timely quality control along every step of the meat handling chain to ensure that consumers always receive flawless fresh meat products.

The result is that the meat processing industry avoids cross-contamination and costly recalls, food retailers always receive top-quality meat products and end consumers are protected against health risks.



Many people are not aware that although Europe boasts the lowest number of food infections in the world, according to the WHO, 23 million people still become sick and 5,000 die each year as a result.

Apart from reducing health risks, there are still other positive effects. The rapid tests make it possible to objectively determine the best-before-date in order to ascertain whether the meat can still be processed or if it's still palatable. This automatically leads to less waste, which in turn has a positive impact on the climate, the environment and society.

Avoiding waste can help conserve resources in food production. 285 million tons of meat is produced around the world each year. In 2010, 6.1 tons were discarded by food retailers and consumers. Meat waste is responsible for 21 percent of the worldwide carbon dioxide emissions produced by food waste. Nearly 1 percent of the energy and 9 percent of the water consumed in the US is used to raise animals for meat consumption.

The BFD-100 handheld measurement device will not solve these problems, but it can make a small contribution to delivering better food to the consumer and conserving more of our resources. Paragraph 64 of the German Food and Feed Code currently requires that total plate count be measured with the laboratory method, a process that takes 72 hours.

This can lead to product recalls. With the BFD-100, if necessary the quality control manager can react immediately and proactively with a documented process. That means better hygiene in production and the potential to avoid contamination.

The BFD-100 handheld device can currently be used to test pork, with poultry soon to follow.

The first "Critical Control Point" in pork processing is skin measurements on half-carcasses. This step, which is carried out by a veterinarian on five defined points, can be supplemented with the BFD-100. Each of the subsequent steps - coarse cutting, fine cutting, processing, end product - is another "Critical Control Point", at which use of the BFD-100 is advantageous. At the end of the processing chain, the food retailer has the opportunity to monitor the product in the receiving area, as well in the individual stores (even through the packaging). Consumers can thus be assured they are buying flawless meat products.



Using the BFD-100 for controlling the quality of meat is just the beginning. FreshDetect will successively expand your applications to other types of food, from fish and dairy products, to fruits and vegetables.

The focus will be on more than just bacterial contamination and will include the detection of pesticides and herbicides, origin, age (ripeness) and other characteristics.

Work surfaces will also be tested for contamination. The goal of FreshDetect is to replace the Petri dish as the standard method for determining total plate count and to offer a tool for general hygiene monitoring. A consumer-based model is also conceivable within the next few years.