Testo_Specialist_Article_HACCP

Food measuring instruments must meet the international HACCP standards and be "food safe".

The food sector's greatest challenge

Raw materials and ready-to-eat foods need to be dealt with in a particularly responsible and correct way. Damaged or incorrectly stored goods can not only cause commercial losses, but at worst may also lead to cases of food poisoning for consumers. Food manufacturers must therefore check goods regularly and be able to prove their duty of care according to strict regulations. To ensure this, supervisory authorities, dealers, logistics companies and food-processing businesses use modern measuring technology which helps them perform the daily balancing act between food safety on the one hand and cost-effectiveness on the other. Implementation of the HACCP directives which apply all over the world is mandatory. These form the definitive standard for safe food and are increasingly implemented in country-specific laws and regulations.

HACCP (Hazard Analysis Critical Control Points) pursue the goal of minimising food-related illnesses. The concept requires systematic checks, most often of the food temperature over the whole cooling chain, but also of pH levels or cooking oil. Technical monitoring, including documentation, is of prime importance in this area.

Measuring technology innovations must meet sector requirements

The international measuring technology manufacturer Testo AG from the Black Forest adapted to the specific framework conditions of the food sector at a very early stage and in a very comprehensive way. The company's aim of offering professional, fast, yet safe measuring solutions for food have recently been rewarded by the HACCP International organisation. Testo AG is the only company in its sector to receive an award for its food-safe measuring instruments. The instruments were really put through their paces in testing according to HACCP standards and certified as "food safe". A series of demanding criteria had to be met for this: from the testing of the material for robustness and for appropriate design, which does not transfer any

dirt or germs to food, along with easy cleaning, through to user-friendly handling and the possibility of documenting measurement data.

For businesses in the sector, "food safe" means the greatest possible safety when using the measuring instruments and when monitoring the temperature of goods. Testo temperature measuring instruments for contact and non-contact measurement, the cooking oil tester, along with the data logger family and Testo Saveris passed the test and are rated as safe in measurements on food. "Our high requirements in terms of the quality of the measuring instruments are the basis of this success. When developing the instruments, we pay very close attention to fulfilling the HACCP criteria. This means, for instance, that we deliberately involve the suppliers in this area as well, so as to guarantee a universal standard. Certification according to the DIN EN ISO 13485 and 12830 standards goes without saying", says Stephanie Knill, Product Manager for Testo hand-held measuring instruments, talking about the success.

Everything measuring technology must be able to do
The conditions in which food measuring instruments are used are very varied. The HACCP criteria must be fulfilled at every stage of the process which foods go through – From Farm to Fork. The requirements involved in doing so could not be more different in each individual area. All areas of the process do however have one thing in common: the working environment is harsh. Work is done under great time pressure. This means a measuring instrument can be dropped, suffer liquid or dirt ingress or be incorrectly used in the hustle and bustle.

Robustness and simplicity
Testo AG's consistent quality policy takes these special conditions into account. The measuring instruments are appropriately designed. This is the case for example with the testo 104, a folding thermometer for core temperature measurement with an extremely robust metal folding hinge. The possibility of being able to fold the probe up after the measurement makes the instrument easy to handle and solid. Or the testo 108, a temperature measuring instrument with standard penetration probe which gets by with only two keys. It is so easy to operate, that the user does not need to have previous knowledge of any kind. Both instruments cannot be harmed at all by

the harsh working environment. At the same time, they meet the HACCP criteria in terms of hygiene, as they are cleaned under running water and germs cannot develop at all in the first place. In addition, there are no superfluous functions which would complicate rapid measurement. Also no preparation time is needed for the measurement in whatever form. Even untrained staff can use these instruments intuitively and carry out safe measurements. Handling is literally accessible at the touch of a button.

Precision

In addition to the very high level of toughness, the Black Forest manufacturers also prioritise the precision of the instruments. These must also be able to measure precisely under more arduous conditions, e.g. where there are big differences in the ambient temperature from one minute to the next. Because the question which is posed for instance in a spot check of the temperature is not just whether the goods are at the correct temperature, but whether the measured value really does correspond to the real situation as well. Testo measuring instruments dispel these doubts. They are calibrated, as well as being approved by DAkkS [the German Accreditation Body] - and now also "food safe".

Documentation

Fulfilling the HACCP criteria does not just mean taking regular measurements. When food inspectors check a business, the operator must be able to prove compliance with the directives at all times. This is done through the time-consuming, often manual documentation of measurement results. For this reason, numerous Testo measuring instruments have appropriate data storage resources or even PC software for data analysis and logging. As an option, handy fast printers can be connected and measurement protocols still developed directly on site. This offers users a high level of safety in terms of being able to verify the proper condition of their goods at all times. For instance, data loggers travel with food being transported in trucks and continuously display the temperature at specifically defined intervals. The smallest temperature fluctuations during transport can therefore be proved. Results can later be read out on the PC.

Radio probes are installed at the important measuring points in large cold stores and warehouses and the data acquired is forwarded to Testo Saveris. The system can

save 40,000 measuring values per measurement channel and achieves a storage capacity which means a measurement could be taken every 15 minutes for one year. The temperature is continuously monitored and an alarm is set off at the smallest deviation. Maintenance of the cooling chain is not just ensured, it can also be proved. This means goods which are stored in large quantities are optimally monitored at all times.

Only Testo measuring instruments are "food safe"

From a purely technical viewpoint, almost every conventional measuring instrument on the market today is capable of fulfilling the HACCP criteria, to the extent that users are aware of their duty of care and act in an appropriate way. Only a small number of measuring instruments also ensure absolutely safe measurements on foods in the process. "The demands on measuring instruments have been constantly increasing over recent years. In addition to many other factors which measuring technology must comply with in this sensitive area, we also pay attention to the easiest possible use of the instrument. We look on this as a basic requirement of the sector. We know that staff can often change and design our instruments to be as easy and intuitive to use as possible. Because it is only when an instrument can be used correctly that you also get safe results," says Stephanie Knill and continues: "We are proud of the HACCP International Certification and view this as a spur to make our measuring instruments even safer in the future. We will be a reliable partner for the sector in the future with new innovations all the time."

Diagrams:

Fig. 1: The seven principles of the HACCP concept

1. Hazard analysis
2. Critical control points
3. Limit values
4. Continuous monitoring
5. Corrective measures
6. Documentation
7. Regular verification

Fig. 2: HACCP International Certification

Fig. 3: All certified Testo food measuring instruments

Temperature measuring instruments: waterproof mini thermometer, testo 103, 104, 104-IR (certification still ongoing), 105, 106, 108, 110, 112, 735, 926
Infrared thermometers: testo 805, 826, 830, 831
Data loggers: testo 174, 175, 176, 177
Testo Saveris
Cooking oil tester: testo 270