



**FDM
UK**

Food&Drink Manufacturing UK

March & April 2025

fdm-uk.co.uk

KHS
Innopack Kisters PSP



INTERVIEW

**PAUL GARSTANG: DRIVING
SUSTAINABLE GROWTH
IN PACKAGING**

KHS CASE STUDY

**OVERALL COSTS CUT,
QUALITY IMPROVED,
CARBON FOOTPRINT REDUCED**



PhoenixTM solution to HACCP Cook & Chill CCP Validation



As part of any Food processors HACCP program, validation of cook and chill processes is a critical and significant task, taking time, effort, and resources.

PhoenixTM have developed a thru-process temperature monitoring technology specifically for this task, designed to meet the challenges of the food processing market. Ideal for the validation process for any new cook regime, new product, or annual process certification. Whether performing an oven survey "oven mapping to identify cold spots" or validating the cook under production conditions, the thru-process profiling solution gives you the accuracy, efficiency, and reliability you need to satisfy your HACCP demands.

The thermal barrier provides robust protection to the data logger to prevent damage but also ensure that it maintains a safe operating temperature to give accurate temperature readings.

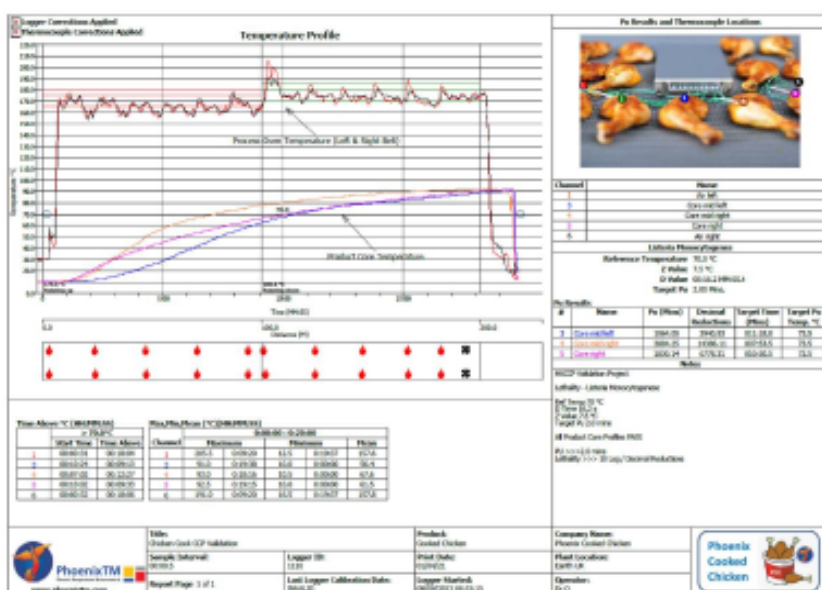
As its name suggests, thru-process profiling is the method by which product and or process temperature is monitored throughout the complete cook / chill process. The data logger making the physical temperature measurement, with multiple thermocouples, travels safely with the product through the process. Protection from process conditions such as heat, steam, water, and oil is provided by a suitably designed thermal barrier.

The thermal barrier provides robust protection to the data logger to prevent damage but also ensure that it maintains a safe operating temperature to give accurate temperature readings. Monitoring of continuous conveyorised linear and spiral ovens and semi-continuous or rotational batch cooks is feasible where the use of external recorders with trailing thermocouples is tedious, completely impractical, and possibly unsafe.

Employing the thru-process principal, process monitoring can be performed under true production conditions without compromising line productivity.

At the heart of the thru-process monitoring system is the PhoenixTM data logger. The PhoenixTM NT data logger range has been designed specifically for the challenges of monitoring food processing applications with an IP67 case design protecting from moisture. Type K or Type T data logger options allow accurate measurement of both cook and chill processes (Type T measurement range -200 °C to 400 °C).

Data logger and thermocouple correction factors can be applied to the recorded data logger data to maximise measurement accuracy. PhoenixTM offer a range of thermal barriers to suit the process type, duration, and temperatures. Even if a standard



thermal barrier cannot meet the process requirements, PhoenixTM can often custom design a unique solution to suit.

Monitoring core temperatures of food products can be a challenge and getting it right or wrong can have a significant influence on the data collected and therefore any decisions or conclusions made.

PhoenixTM offer a range of different designs of thermocouple to suit different product types and sizes. The needle thermocouples ensure you can measure the true core/cold spot of the product accurately and repeatably. Fitted with standard miniature thermocouple sockets, the data logger is also compatible with other generic commercially available thermocouple designs.

Employing the thru-process temperature monitoring principle provides the food technologist with a complete temperature profile of the cook process from start to finish. This information is like the Cook DNA giving full details of the product and or process temperature which is invaluable to allowing validation of the Cook CCP.

From a temperature profile it is possible to accurately quantify product safety (pasteurisation) knowing both the temperature, and time at temperature, of the product.

From the profile graph you can see instantaneously the variation in product temperature at any point in the process either at different locations on the product (whole chicken) or different

product positions within the cooker, cooking rack or across a mesh belt.

The PhoenixTM Thermal View Food Software provides a comprehensive suite of analysis tools to convert the raw profile temperature data into useful process information. The analysis tools include the ability to calculate Fo/Pu values for the process against target micro-organisms.

For a typical chicken cook process the lethality parameters for *Listeria Monocytogenes* (T_{ref} 70 °C, $D_{16.2}$ s and Z value 7.5 °C) can be input to automatically and accurately calculate for each monitoring point the number of decimal reductions of the pathogen achieved during cook to meet CCP limits.

The information gathered, further to process validation, can be used to allow informed process problem solving and optimisation to maximise product quality, yield, process productivity and efficiency.

Contact PhoenixTM to help Find, Fix and Forget your Food Cook Problems!



PhoenixTM
Phoenix Temperature Measurement

Further Information
www.phoenixtm.com