DETECTION OF CONTAMINANTS IN PIZZA

Towards a previously unreachable level of excellence

- Able to detect contaminants invisible to the human eye
- Takes chemical image and detects "undesired" plastics, cardboards and insects
- Inline: Combined with alarms and sorting systems

HYPERA: The only way to detect cardboards, insects and plastics in pizza

Food safety and quality control are essential parts of the food industry. Contaminant detection in food is a priority for every established food producer. There are multiple types of foreign body detection systems such as metal detectors, X-Ray and artificial vision systems but they cannot detect small metallic pieces, or low density objects and contaminants with similar colours to that of the matrix.

Pizzas consist of a base and a topping with multiple ingredients, each of them with different colours or densities: **Traditional** contaminant detection **systems** are **not able to distinguish colours or densities of contaminants** (such as cardboards, plastics, insects and hairs) from the often **similar colour and densities of the base and its toppings.**

The HYPERA hyperspectral imaging system detects these contaminants by mapping the chemical composition of the pizza and its potential contaminants.

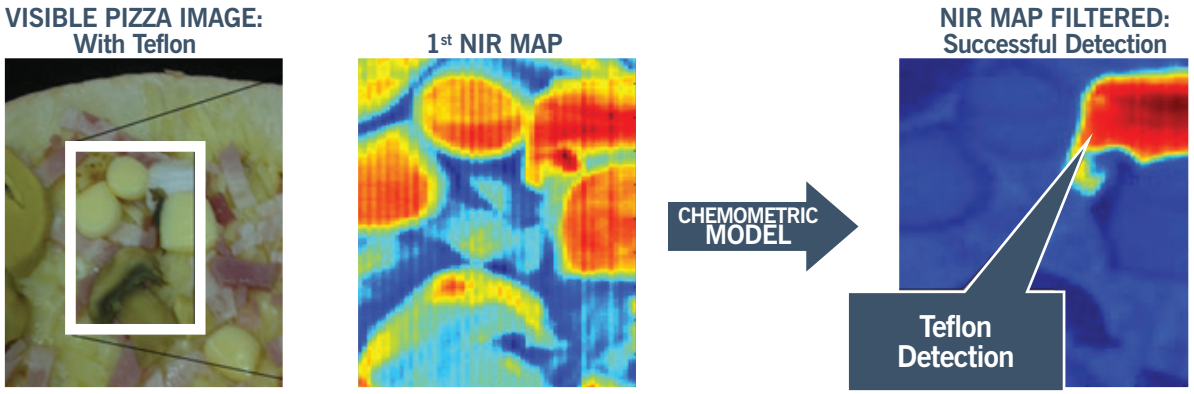
Case study

Pieces of Teflon (PTFE) – dropped from the grinder- and plastics were placed over as well as just below the topping of the pizza. PTFE looks like cheese, hence, it cannot be easily distinguished by the human eye or even by means of any visible artificial vision setup.

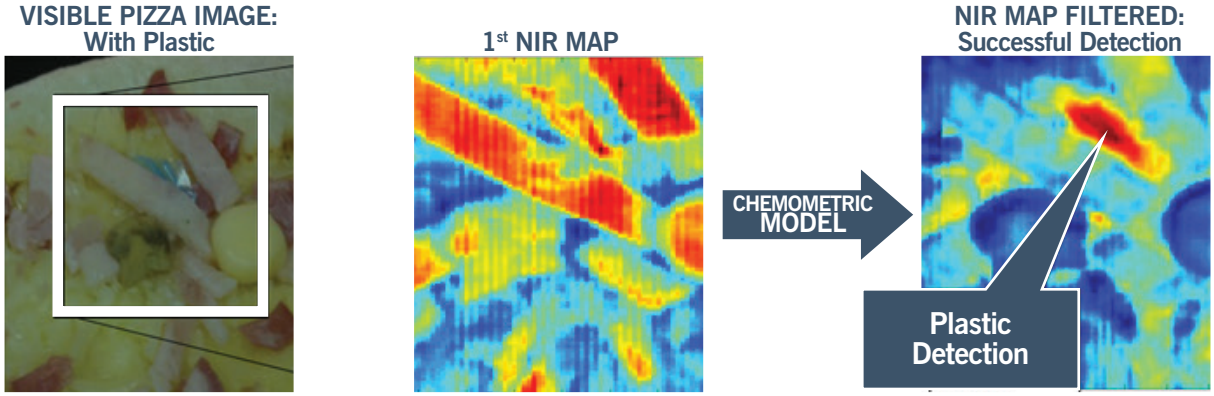
Hyperspectral images were acquired with HYPERA and topping ingredients were accepted in the initial Near Infrared (NIR) image by means of an ad hoc chemometric filtering model. As a result, contaminants –PTFE pieces and thin plastics- were effectively detected and identified as red in a false colour scale.

The in-line HYPERA system scans all pizzas on the conveyor and expulses pizzas containing contaminants, using an in-built sorting system.

Example for detection of Teflon (PTFE) in pizza:



Example for detection of THIN PLASTICS near the surface of the pizza:



Conclusions

HYPERA is able to detect contaminants such as plastics, insects and cardboards on and near the surface of the pizza: **HYPERA** pushes the boundaries of traditional detection systems and achieves a previously unreachable level of excellence in food safety and quality.