



Your Research Partner for Photonics Solutions

CENTRE FOR  
ADVANCED PHOTONICS  
& PROCESS ANALYSIS

CAPPA

Innovation Through Light

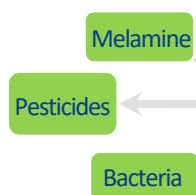
# Photonics for the Food and Beverage Industry

## Application Case Study

The manufacture of food and beverage products is Ireland's most important indigenous industry with a turnover of €27.5 billion. The beverage industry in Ireland is estimated to be worth approximately €1.5 billion. The sector employs over 250,000 people and supplies the majority of produce to Ireland's €15 billion domestic food sector. Ireland is the largest net exporter of dairy ingredients, beef and lamb in Europe and the largest exporter in Europe of powdered infant formula. Photonics makes significant contributions to the research and development of a variety of different food applications.

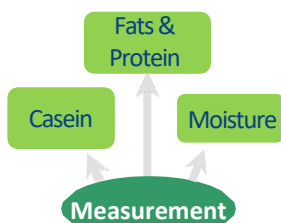
### Detection

- Detection and identification of bacteria and other micro-organisms
- Melamine detection
- SERS detection of pesticides in foods
- Detection of the quality of ingredients



### Measurement

- Quickly and accurately measures fat, moisture, protein, lactose, casein, total solids and other important constituents
- Liquids can be measured more quickly by NIR than by primary method for moisture, protein, fat, fatty acids, ethanol, density, solids, organic acids, carbohydrate profile and other important constituents



### Composition

- Composition of a wide variety of foods and beverages including fats, oils, grains and cereals
- Multivariate analysis: can be used for a wide range of applications



### Analysis

### Analysis

- Analysis of carotenoids, powders, seeds and grains
- Analyse ingredients, process and final product samples
- Fat and dry matter analysis of cheese for process control
- Rapid, multi-component analysis simultaneously

Dairy Products

Powders, Seeds & Grains

Carotenoids

### Composition

Fats & Oils

Grains & Cereals

## Innovation Voucher Case Study: Beverage Bottle Sterilisation

An Irish start-up company approached CAPPA to explore the feasibility of the product which was carried out through **Enterprise Ireland Innovation Vouchers** and direct funded engagements. The company wanted to explore how clean beer bottles are and develop a system to reduce contamination in the industry. Subsequently a simple demonstrator was designed and developed and the operation of the device was explored. CAPPA were involved with the design and manufacture of a prototype for the company to showcase to potential clients.



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