Analitica Labs

AnaliticaLabs.Vis4Q Wrapping Foil Detector

Food safety, product quality and related brand protection have always been primary concerns for food processors. Meeting the requirements of the regulatory environment and the expectations of health-conscious consumers are among the most challenging issues of today's food industry. In addition to more stringent regulations, retailers have begun to make product inspection demands on food processors, who must rely on the latest quality control technologies and equipment to keep the food supply safe. One threat to food safety is foreign object contamination, for which product recalls are very common and impose significant costs on food processors, damage their reputations, and put consumers at risk.

Our innovative Vis4Q wrapping foil/cling film detector (patent pending) enables food processors to reliably **detect flakes of plastic wrapping foil**, particularly in minced meat, dried meat, and other sliced meat products as well as on frozen blocks of meat products after unwrapping. Our detector can also **identify small fragments of bone and cartilage** as well as undesirable presence of **fat lumps**. Several thousand pieces of meat products can be analyzed per minute.

With our innovative products and expert services, we can assist your business to deliver food products that meet the **highest standards of food quality and safety**.

Detection Technology

Foreign body detection in the food industry is typically implemented with metal detectors using radio frequency waves or with X-ray scanners. Both technologies rely on significant differences in the electromagnetic properties or optical density of foreign objects compared to the properties of the analyzed product itself, which differences might not exist. Additionally, there are significant technological limitations to achieving adequate resolution i.e. the minimal size of detectable foreign objects and speed of scanning.

Thin soft plastic wrapping foil, low-calcinated bones, cartilage and lumps of fat have very similar optical densities to meat tissues and cannot be detected by their electromagnetic properties or differences in optical density.
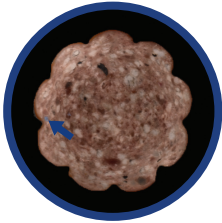
AnaliticaLabs.Vis4Q Wrapping Foil Detector uses **multi-spectral imaging technology (MSI)** to detect flakes of plastic wrapping foil, bones, cartilage and fat lumps in meat products with high resolution and **rapid detection speed**. Due to the nature of the technology, the objects of detection must be visibly exposed on the objects' surfaces or be detectable by light transmission.

The application is therefore **optimal for sliced and minced meat products** or surface scans of **frozen meat blocks**.
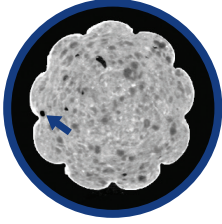
The Vis4Q Wrapping Foil Detector consists of a **fully automatic**, fast, and reliable electro-optical system combined with a **state-of-the-art AI module**. The speed and spatial resolution of detection can be adapted to the manufacturing requirements, whereby improved speeds and resolutions of detection can be achieved. The detector **can be integrated into manufacturing lines** e.g. meat slicers, including gravity transport sections.

The main characteristics of the detection technology are:

- Non-contact measurement

- Fast real-time detection (suitable for production lines)

- Measurement of spatial distribution of objects of detection (in contrast to point sampling)

Features

✓ It offers a fast, high-resolution, and reliable system for detecting flakes of wrapping foil.

✓ The optimal system application is within product lines where the wrapping foil is visibly exposed on surfaces or where light transmission through thin layers is possible.

✓ The application can be expanded to detect fragments of (low-calcinated) bones, cartilage and fat lumps

✓ It is designed to run for many years in a factory environment and make reliable pass/fail decisions on millions of products

Implementation Project

The implementation project integrates the Vis4Q Wrapping Foil Detector within the client's manufacturing line and customizes the detector according to the client's requirements. Our experts provide ongoing **support** for reliable operations including software **maintenance** and **calibration** of equipment to support the production processes.

Installation Requirements

The system is an electro-optical system which needs to have an unobstructed view of individual meat product pieces. These can be slices as they are being sliced (the moment before gravity drop), thin product spread on a transport mechanism or frozen meat blocks after unwrapping. Implementation of an appropriate lens cleaning mechanism to remove meat debris and development of a protective casing that complies with food industry standards for hygiene is also part of the project.

Analitica
Labs

For a smooth project implementation, cooperation with the vendor of the manufacturing line is preferable in order to provide:

- A technical draft and specification of the protective casing mounting points and cable routing facilitating lens cleaning and meeting hygiene requirements.
- Appropriate connections with the machine automation controller interface for snew piece trigger (signal out) and bad piece messages (signal in).

Development of the protective casing with the lens cleansing mechanism can be provided by Analitica Labs, by the manufacturing line vendor or other third party.

About Analitica Labs

Analitica Labs is dedicated to the application of high-technology photonics to human safety and health. We develop innovative solutions that allow our clients to accomplish their goals more efficiently. Through our specialized expertise we offer support for specific food safety and quality challenges.

www.analitica-labs.com • info@analitica-labs.com

Analitica
Labs