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On-site allergen management with a rapid test solution

A perfect tool for implementing the allergen analysis as part of the food safety quality control assessment

It is well known that food allergies are an immune system reaction to a food or a substance in food. Even a tiny amount of allergy-causing food can trigger signs and symptoms such as digestive problems, hives or swollen airways. In some people, a food allergy can cause severe symptoms or even a life-threatening reaction known as anaphylaxis. Food allergies affect an estimated 6 to 8 percent of children under age 3 and up to 3 percent of adults. Coeliac disease is different from an allergy or food intolerance. The body's immune system attacks its

own tissues after the ingestion of gluten which causes damage to the lining of the gut and means the body can't properly absorb nutrients from food. Coeliac disease globally affects one in 100 people, however it is believed that about 70% of people affected are undiagnosed.

The importance of allergen testing

In both cases (food allergies and coeliac disease), the only treatment is lifelong adherence to a strict allergen-free diet. For this reason, the EU Regulation 1169/2011 brings together EU rules on general food labelling (including



allergens), alongside similar legislation in many other countries worldwide, which also require food manufacturers to label allergenic ingredients on food product packaging. Considering that food allergens may be present as an ingredient but also inadvertently via cross - contamination, it is crucial that the food industry is able to maintain the traceability of the food production process, from raw material to final product. This requires the identification of food ingredients, components and additives, as well as the monitoring of any potential cross-contamination. The best way to ensure traceability is

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to implement an Allergen Management Program, which includes adequate analysis at the production site.

Allergen Management in the production site

Allergen management comprises the procedures, policies and practices contributing to the control of allergens within a food business, covering all aspects of the food product supply chain and applying a documented, systematic approach to identifying and controlling allergens.

Two key aspects in implementing allergen management are Cleaning and Allergen Risk Review:

- Cleaning includes all the procedures to manage raw material spills, as well as cleaning the facility, equipment, and tools to prevent allergen cross-contact in place. Cleaning validation and verification can be monitored by surface or rinse water analysis.
- Allergen risk review is the allergen status of a food product. It identifies the presence of allergens that are intentionally formulated into a product, and quantifies (by using on-site analysis) the risk of allergens which may be unintentionally present (cross-contact allergens).



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LFD Kits	No. of Tests	Sensitivity Food Matrix	Sensitivity Swabbing	Sensitivity Rinse Water	Sensitivity related to
SENSIS <i>Strip</i> Peanut	20	2.5 ppm	0.07 µg/cm ²	0.17 mg/L	Total Peanut
SENSIS <i>Strip</i> Almond	20	2.5 ppm	0.07 µg/cm ²	0.17 mg/L	Total Almond
SENSIS <i>Strip</i> Crustaceans	20	2.5 ppm	2 µg/cm ²	0.17 mg/L	Tropomyosin
SENSIS <i>Strip</i> Mustard	20	2.5 ppm	0.07 µg/cm ²	0.17 mg/L	Total Mustard

LFD Kits	No. of Tests	Sensitivity Food Matrix	Sensitivity Swabbing	Sensitivity Rinse Water	Sensitivity related to
SENSIS <i>Strip</i> Casein	20	0.5 ppm	0.01 µg/cm ²	0.03 mg/L	Casein
SENSIS <i>Strip</i> Egg	20	0.5 ppm	0.01 µg/cm ²	0.03 mg/L	Egg White
SENSIS <i>Strip</i> Soy	20	2.5 ppm	0.07 µg/cm ²	0.17 mg/L	Total Soy Protein
SENSIS <i>Strip</i> Cashew	20	2.5 ppm	0.07 µg/cm ²	0.17 mg/L	Total Cashew

Rapid Test Solution from Eurofins Technologies

Eurofins Technologies, a supplier of test kits and systems for laboratory analyses, provides a new allergen testing product range called SENSIS*Strip* lateral flow devices, which quickly detect the allergens that can be the source of any cross-contamination, and must be labelled on packaged food products. SENSIS*Strip* allergen test kits are based on the principle of immunoassay, a quick and easy-to-use method which requires only a few minutes of incubation time.

This enables adequate allergen control at different stages of the food manufacturing process, across food matrices, rinse water and equipment. With low detection limits and accessibility (the kit does not require the expertise of highly-qualified staff to operate it), the SENSIS*Strip* allergen kits are the perfect tool to control potential cross - contamination from food aller-

gens, allowing for a quick screening of raw materials, the production process and the final product. This avoids the external analyses and thus considerably reduces the time taken to release a food product batch to market.

The kits are provided with all the necessary material ready to use, allowing you to perform analysis across 20 individual tests per kit, on food matrices or environmental samples (with no need to acquire additional disposable material).

Semi-quantitative or quantitative results

An evaluation card is included to enable a semi-quantitative result, based on the intensity of the test line on the strip.

- The evaluation card is aimed for a better distinguishing between negative, borderline and positive samples.

- The intensity of the test line has to be compared with the different increments of the colour card.
- Results lower than increment 3 should be treated as negative.
- Results according increment 3 or higher should be treated as positive.

In addition, the strips may be interpreted by using with a standalone reader, for the analysis of lateral flow test. With a friendly interface, the reader provides a quantified result of the correspondent allergen (in ppm or ppb) within minutes.

It is an open system, also validated for the determination of different parameters such as mycotoxin or water contaminants.

The final objective is being able to provide the customer with the most comprehensive lateral flow test product range in the market, covering the allergens mentioned in the European Regulation for labelling.

The tests have been specifically validated in food, surface and rinse water samples, showing high sensitivity and specificity in all the cases, thanks to the internal design of the technology (a combination of biotinylated antibodies and gold nanoparticles conjugated to streptavidin).

This makes them the perfect tool to control potential cross-contamination of food allergens and an important advantage in reducing the time needed to release a food product batch to the market, being a fast and reliable in-house testing tool.

This new product range is a key component of Eurofins Technologies' food allergen management and cleaning control monitoring solutions which, together with the comprehensive line of SENSIS*Spec* ELISA assays for allergen detection, demonstrate Eurofins Technologies' commitment to providing high-quality test methods for food safety customers.

