

Allergen Technical Sheet

There is great concern in the food industry about allergens in ingredients and products. Growing numbers of allergen-sensitive consumers are high-risk candidates for serious reactions resulting from encounters with products that contain ingredients that non-sensitive consumers tolerate. Regulatory agencies around the world are addressing the issue, usually by mandating that certain specified ingredients be clearly declared to the consumer.

Allergens That Must Be Labeled				
	US	Canada	EU	Japan
Egg	x	x	x	x
Milk	x	x	x	x
Fish	x	x	x	
Shellfish	x	x	x	
Tree nuts	x	x	x	
Peanuts	x	x	x	x
Wheat	x	x	x	x
Soy	x	x	x	
Celery			x	
Mustard			x	
Sulfites		x	x	
Sesame		x	x	
Buckwheat				x

*Other recommended allergen testing (presence \geq 10ppm) for export to Japan: Abalone, salmon roe, cuttlefish, shrimp, orange, crab, kiwi, beef, walnut, salmon, mackerel, soy, chicken, pork, matsutake, peach, yam, apple, gelatin

Eurofins GeneScan offers a variety of ELISA (Enzyme Linked Immunosorbent Assay) and PCR (Polymerase Chain Reaction) based tests for determining the presence and quantity of allergens in food and food ingredients. Many food companies use these tests as part of their program to monitor their suppliers and to reduce the risk of the presence of an allergen in their products.

DAIRY ALLERGEN

Dairy allergens are the focus of consumers monitoring infant and children's foods for the presence of cow's milk and related products. The major protein component in whey, bovine β -lactoglobulin (BLG), is a potent allergen and is considered the agent behind a widespread incidence of cow's milk allergy. Whey protein concentrates are widely used in dairy products including some infant formulas. Casein, most commonly extracted from milk by coagulation, is the primary basis of cheese and other dairy products and is associated with milk allergies as well.

Eurofins GeneScan utilizes whey β -lactoglobulin and casein tests for quantitative detection of allergenic milk proteins, whole or as fragments, when present.



EGG ALLERGEN

Many food manufacturers face a growing food safety concern associated with the accidental mislabeling or cross-contamination that can occur during product manufacturing. Manufacturers who produce products that contain egg in the same facility as egg-free products are at risk for an egg allergen issue. There are four main allergenic proteins found in egg white, amounting to 80% of the total

Allergen Technical Sheet

egg white proteins. These main allergens are ovomucoid (11%), ovalbumin (54%), ovotransferrin (12%) and lysozyme (3.5%). The allergenic potential of the proteins of egg yolk is only moderate compared to the allergenicity and amount of the proteins present in the egg white.

Eurofins GeneScan assays products for egg allergens using immunoassay technology. The Egg Protein test is a sandwich ELISA for the quantitative detection of egg white protein in finished foods with a detection limit down to 5 ppm.

GLUTEN ALLERGEN

Monitoring the ingredients of food items is a part of daily life for consumers who develop adverse reactions to gluten. Such individuals may require a diet free from gluten originating from wheat, rye, barley, and in some cases, oat. In Canada, a Gluten Free declaration means the product cannot contain any detectable amounts. Currently, the Codex Alimentarius definition of Gluten Free is less than 200ppm; however a draft revision of that standard proposes to set the limit at 20ppm. In the U.S., as part of the Food Allergen Labeling and Consumer Protection Act (FALCPA), the FDA in January 2007 has proposed a "gluten free" threshold of 20ppm. Our labeling experts can provide guidance for making "gluten-free" claims on your label.

Eurofins GeneScan performs quantitative ELISA tests to detect gluten from wheat, rye and barley (not gluten from oat, rice or corn) with a detection limit down to 3 ppm. This procedure works well in raw and processed foods.

PEANUT ALLERGEN

Peanuts, a traditional staple of the American diet, are a very nutritious but highly allergenic food source. Nearly 7% to 10% of the total protein content of peanuts consists of allergenic proteins (i.e., Arachine, Conarachine). Ingesting even a few milligrams of peanut can induce an allergic reaction in highly sensitive persons. Many manufacturers carefully monitor their product lines for the presence of peanut allergens.

Eurofins GeneScan conducts peanut allergen testing using a sandwich ELISA, which allows the quantitative detection of peanut proteins in foods. The test allows for the detection of peanut proteins in food down to 2.5 ppm. This assay can be conducted on either ingredient components or finished products.



SOYBEAN ALLERGEN

Soya has been identified by the Food and Agricultural Organization (FAO, 1995) as one of the foods that account for most of the severe allergic reactions. Soya and soya-derived foods such as lecithin are commonly used as food ingredients in instant soups, sauces, spreads, biscuits, chocolate, ice cream and infant formulas. To assist manufacturers in properly identifying the possibility of a soy allergen risk, analysis can be conducted using highly sensitive PCR assays for soybean DNA.

Eurofins GeneScan conducts the PCR assay on a unique region of the soya DNA. This type of specific soya detection is sensitive even in highly processed foods. It is designed for the analysis of both raw materials and finished products.

These are the most common allergens that require testing. Eurofins GeneScan offers analytical procedures to detect many other allergens as well. Please call with your specific requests.

ENVIRONMENTAL TESTING

Eurofins GeneScan provides Swab Kits testing for environmental audits of processing plants. Please contact us at (866) 535-2730 for details.

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