

Allergens – Environmental Monitoring

The problem of undeclared or unintentional allergen content in foods for human consumption is rising in importance with the increase in prevalence of sufferers who experience severe reactions to one or more of the “key” food allergens*. Similarly the high prevalence of Coeliac Disease (gluten intolerance), which is only treatable by avoidance of cereal gluten in the Coeliac diet, has increased the importance of knowing that foods are truly “gluten free”.

Increasingly food manufacturers and caterers are adopting HACCP-based allergen control plans which require thorough audits of manufacturing/preparation processes to ensure that allergenic protein that may be present in a manufacturing or processing facility is not incorporated into allergen- or gluten-free foods. Part of this process involves the validation of cleaning and cleaning-in-place routines to ensure thorough protein removal. Such validations often require the collection of test samples from processing line surfaces and equipment in order to prove that protein has been effectively cleaned to below specified levels.

* Crustaceans; Egg; Fish; Milk; Peanut; Sesame; Soya; Tree nuts

Intended Use

The allergen swabbing kit is intended to be used for the collection of environmental swab samples, from which allergenic protein and/or gluten content may be estimated. Information on contamination levels is useful in order to ensure adequate cleaning and/or to identify problem areas e.g. unwanted build-up of allergens in processing equipment.

If swabs are being taken as part of a cleaning validation, it is important to note that a positive control sample should ideally be returned to the laboratory along with the swabs to be tested. This is to ensure that the allergen can in fact be detected in the product/ingredient that is thought to be causing the contamination to the line. This should usually be in the form of a prior to clean swab and/or the product/ingredient sent down the line before cleaning.

Principles of Testing

The kit contains all the materials required to collect and preserve proteins and/or DNA from environmental surfaces, processing machinery etc. The surface is swabbed using a swabbing and preserving solution (specific for the allergen to be tested for) and the swabs are then placed in plastic transport tubes. Swabs can then be returned to a laboratory for analysis using ELISA or DNA based methodology.

Kit Components

The following components are provided:

- Individually packaged, sterile transport swabs
- One vial containing 25ml of a specific swabbing solution containing surfactant and preservative. These swabbing solutions are usually unique for a particular allergen. Please request as many different solutions as allergens to be tested.
- Swabbing sample record sheet – photocopy as required for recording tube identification, swabbing locations etc and for noting test results.

Fact Sheet

Materials Required (Not Supplied)

- Indelible pen for labelling transport tube labels
- Clean damp cloth for cleaning swabbing site after swab collection
- Latex gloves for sampling

Shelf Life

The swabbed samples may be stored in a fridge for up to four days, for example during transport to a laboratory.

Preparation of Kit Materials

The swabbing solution reagent is supplied pre-diluted. NO PREPARATION is necessary, simply mix by repeated inversion (do not shake).

Safety Note

'Good laboratory practice' techniques should be employed when using this kit; if such practices are used the reagents constitute a very low potential risk to health. Safety clothing (protective coat, safety glasses, gloves etc) may be necessary depending on the swabbing environment. Any contact of swabbing solution with skin/eyes should be treated by washing/irrigation. It is also important to be aware of the allergic, toxic or infectious potential of the analytical samples.

Note: After swabbing, wipe the swabbed area with a clean damp cloth to remove any swabbing solution residue.

Detailed Swabbing Procedure

Details of swabs taken and results may be recorded on the Sample Record Sheet.

Note: This swabbing procedure can detect allergens at extremely low levels. It is important to ensure that hands, clothing etc are not contaminated with food materials. If in doubt, wash hands and/or wear gloves and change into clean protective clothing.

1. Remove the required number of components and the swabbing solution from the kit before starting the procedure.
2. Label the required number of transport tubes with an indelible pen to ensure sample identity.
3. Mark out or estimate a swabbing area of approximately 10 cm x 10 cm. Alternatively, the swab may be used to collect samples of contamination from problem areas, for example, processing equipment.
4. Break the seal of the sterile viscose swab from its packaging and wet the end by dipping into the swabbing solution.
5. Use the wetted swab to wipe the entire swabbing surface using side to side movements of the swab and revolving the viscose end of the surface; repeat this swabbing procedure using movements at right angles to those used in the first swabbing.
6. Return the swab to the transport tube and secure the cap taking care to ensure that the stem of the swab does not prevent the tube from being properly sealed.
7. Return the swabs to the laboratory.



Fact Sheet

Swab Analysis Reporting Limits

ELISA (Quantitative)	
Analyte	Standard Range for Swabs* (ug/swab)
Almond (Neogen Veratox)	0.1 – 1.0
β-Lactoglobulin (R-biopharm)	0.01 – 0.81
Buckwheat Flour Protein (ELISA Systems)	0.25 – 2.5
Casein (Neogen Veratox)**	0.1 – 0.6
Casein (Morinaga)	0.06 – 0.5
Egg (Morinaga)	0.031 – 1
Gluten (R-biopharm)	0.02 – 0.16
Hazelnut Protein (ELISA Systems)	0.1 – 0.5
Peanut (Neogen Biokits)	0.01 – 0.2
Sesame (Neogen Biokits)	0.025 – 0.4
Sesame Protein (ELISA Systems)**	0.01 – 0.05
Soya Protein (ELISA Systems)	0.25 – 2.5
DNA Testing (Qualitative) Detected/Not Detected	
Analyte	Detection Limits (mg/kg)
Almond	10
Brazil	1
Cashew	100
Hazelnut	1
Macadamia	10
Peanut	1
Pecan	10
Pistachio	100
Walnut	10
Celery/Celeriac	1000
Mustard	10
Crustaceans	50
Fish	10
Molluscs	50
Lupin	100
Kiwi	10
Chestnut	100
Pine nut	100

*Results falling outside of the standard range will be reported on a 'less-than' (<concentration of bottom standard or 'greater-than' (>concentration of top standard basis)

** These assays are not used routinely but are UKAS accredited



For further information contact Customer Services

Phone: +44 (0) 118 9184076

Email: enquiries@rssl.com

www.rssl.com