Swab testing, often just called swabbing, is the testing of a surface for bacterial, fungal or yeast presence by rubbing the surface to be tested with a swab which is then sent to the laboratory where it is checked to see what bacteria, fungi and/or yeasts were transferred from the surface to the swab. Obviously if a surface has been properly cleaned and sanitised none should be found. Conversely, if the surface is dirty, the swab will be teeming with organisms.

Hygiene swabs are also often known as environmental swabs. They are swabs that are taken from surfaces in food production areas to see if they are microbiologically clean or dirty. These swabs can be taken to assess effectiveness of cleaning of things like equipment, work surfaces, hands and aprons. In essence we are using swabbing to see if ‘visibly clean’ is ‘microbiologically clean’ and there is little point swabbing visibly dirty areas as our eyes have already told us that they are unacceptable.

Hygiene/environmental swabbing can be very precise (quantitative swabbing), for example when we very carefully swab a predefined area and obtain a very accurate count per cm², or they can be an effective management tool (qualitative swabbing). In this latter case, some accuracy is sacrificed to gain a cost benefit. This means we can do more swabs for the same cost and more swabs increase the chance of us finding something unacceptable that requires corrective management action. This is known as qualitative swabbing or if a numerical or count value is attributed to the swab it is known as semi-quantitative swabbing.

It should always be remembered that the goal of swabbing is not to get perfect results, but to find areas where hygiene can be improved and then improve them!

Swab test kits

Typically an individual swab comes in its own plastic tube and many are sterilised. Some swabs have a gel or fluid in the tube known as transport medium. This medium helps to keep any micro-organisms on the tube alive during transportation to the laboratory and the cotton bud part of the swab should be placed into the transport medium.

Sometimes dry swabs are used in tubes with no transport medium. Such swabs are usually wetted with a sterile diluent prior to use. When using such a diluent be careful not to contaminate it as swabs placed in the solution after it was contaminated will yield false positive results.

If you are using a sterile diluent to wet your swabs always throw away at the end of the swabbing session the opened sterile diluent that has not been used – never use it for the next swabbing session.

Swabbing schedules

A swabbing schedule is a list of the areas to be swabbed/tested and swabbing schedules need to be defined. The vast majority of swabs should be taken from surfaces that have product contact. However, it is pointless having a fixed swabbing schedule that is followed week in, week out as staff will become wise to this fact and you will get good results as the areas to be swabbed will receive extra cleaning and sanitisation! In such scenarios, one wonders what the results would be like if we tested outside the schedule!

For this reason, the swabbing schedule should be as random as possible in terms of day, time and areas swabbed. If you have QA/QC staff who understand hygiene issues, the approach may well be to define the number of swabs per room or area and let them use their knowledge and experience to decide the actual swabbing sites.

Swabbing technique – some key points

Whatever the swab touches will potentially contaminate the swab. For this reason never touch the actual swab head and only allow it to contact the area to be tested.

The actual number of bacteria picked up by a swab at swabbing depends upon various factors such as whether the swab was wet or dry, the pressure used to apply the swab to a surface, the number of times the swab is wiped over the surface and which bits were swabbed. A good example of the latter is hand swabs – if the angles between the fingers are included, more bacteria will usually be isolated.

When swabs have been collected they should be stored in a refrigerator (not frozen) until they are submitted to the laboratory.

All swabs should be clearly identified. Some people number their swabs and then record the details of each site swabbed on a submission form, others just write the details of the area swabbed on the swab’s casing. We prefer the former approach. If numbering swabs it is best to underline 6 and 9s so no confusion and errors can occur. For example is 6 really 6 or could it be 9 and is 19 really 19 or could it be 61?

Bacteria tested for

The bacteria tested for will depend upon the food sector you are in. Typical swabs from equipment and work surfaces are screened for total bacteria, enterobacteria and E. coli. Hand swabs are usually screened for Staphylococcus aureus (the bacterium that causes food poisoning and is associated with septic cuts or spots, but can also live on the skin) and either E. coli or enterobacteria.

Special swabs are needed if you wish to screen surfaces or equipment for salmonella and/or listeria.

Results

Typically, results can be available in 48 hours. If salmonella or listeria testing is involved the time is a little longer.

Stop and think!

What are you going to use your results for? Even today managers/owners admonish their staff for bad results and say nothing about the good results! Surely, staff deserve praise for good results as this is a strong motivational force that will play its part in improving hygiene standards.