

L'uso dei PC SLIDES da contatto per il monitoraggio microbiologico di SUPERFICI-LIQUIDI nell'industria alimentare secondo la norma ISO 18593:2018



Nei processi della catena alimentare, il controllo microbiologico delle superfici è un fondamentale punto critico di controllo per evitare, prevenire o ridurre i rischi per la sicurezza alimentare a livelli accettabili. Metodi di campionamento efficaci sono indispensabili per garantire una corretta rilevazione dei microrganismi presenti sulle superfici o liquidi. A seconda del tipo di superficie e di altre esigenze specifiche, l'utilizzo di uno slides a contatto o di una spugna sterile rappresenta un metodo di campionamento più conveniente rispetto ad altri metodi classici. Il PC SLIDES da contatto è un dispositivo pronto all'uso, utilizzato per il monitoraggio microbico di superfici e liquidi, **anche in presenza di residui e disinfettanti**. I PC SLIDES permettono **2 analisi contemporaneamente** poiché hanno due diversi terreni di coltura. A seconda della tipologia del terreno, il PC SLIDES potrà essere utilizzato per analizzare la conta batterica totale, enterobatteri, lieviti e muffe, stafilococchi, pseudomonas, coliformi, streptococchi, ecc. La rilevazione con i PC SLIDES è attendibile e rappresenta un metodo semiquantitativo. Dopo l'incubazione, le unità formanti colonie (CFU) vengono analizzate mediante ispezione visiva (Figura 1).

Le PC SPONGES sterili invece vengono utilizzate principalmente per il campionamento microbiologico di Listeria, Salmonella e altri microrganismi patogeni di origine alimentare; questi sono solitamente disponibili in sacchetti di trasporto che proteggono il campione durante il trasporto prima e dopo il campionamento (Figura 3).

Tipologia di PC SLIDES	pz/cf	cod
For total bacterial count (agar type: PCA + TTC + disinfectant neutralisers) and enterobacteria (agar type: VRBG + disinfectant neutralisers)	20	525262V
For total bacterial count (agar type: PCA + TTC + disinfectant neutralisers) and for the detection of <i>E. coli</i> and coliform (agar type: Chromogenic and selective medium that allows the detection of <i>E. coli</i> and differentiation from other enterobacteria)	20	525392V
For total bacterial count (agar type: TSA + disinfectant neutralisers) and detection of yeasts and moulds (agar type: Rose Bengal agar)	20	525482V
For total bacterial count (agar type: TSA + disinfectant neutralisers) on both sides of the slide	20	525472V
For total bacterial count (agar type: PCA+TTC+disinfectant neutralisers) and for detection of yeasts and moulds (agar type: Rose Bengal CAF agar+disinfectant neutralisers)	20	525272V
For total bacterial count (agar type: PCA+TTC+disinfectant neutralisers) on both the sides of the slide	20	525322V
Tipologia di PC SPONGES		
Dehydrated surface sampling sponges in a 450 ml bag	-	400 710-1020
Sampling sponges with buffer	-	100 300-0229
Dehydrated surface sampling sponges in a 450 ml bag with gloves	-	400 710-0860
Surface sampling sponges pre-moistened with neutralising buffer	-	100 300-0230
Surface sampling sponges pre-moistened with Dey/Engley neutralising buffer	100	300-0231
Sterile transport bags and surface sampling sponges with handle, pre-moistened with neutralising buffer	100	300-0232
Sterile transport bags and surface sampling sponges with handle, pre-moistened with Dey/Engley neutralising buffer	100	300-0240

Sampling procedure

Location

Sampling location depends on the process and historical data linked to each site. A thorough examination of the process, and all steps involved, should be performed to identify critical control points.

Area

A clear indication of the sampling area should be defined. This area doesn't always need to be defined by numerical size, it just needs to be clearly described and representative of the surface sampled. For the detection of *Listeria*, *Salmonella* and other food-borne pathogenic microorganisms, it is recommended that you sample between 1000 and 3000 cm². For simple enumeration of microorganisms, the area can be smaller or equal to 100 cm².

Sampling techniques

For flat surfaces, contact plates and flexible contact slide methods represent the easiest method of surface sampling; for hard to reach areas, swabs are the best choice, and for large surfaces (1000 to 3000 cm², for instance the research of *Listeria* and *Salmonella*) a sterile sponge should be used (Figure 3).

Time of sampling and frequency

Sampling time and frequency should be clearly specified in the producer's sampling procedure, depending on the sampling objective. In general, if sampling is not done daily, it should not always be performed on the same day(s) of the week. Areas where contamination is possible should be sampled frequently, but storage areas should also be considered for sampling less frequently.

Contact slide sampling method

01. Take a slide from the refrigerator and leave it at ambient temperature for about 5 minutes, unscrew and extract the slide from its cylindrical container. Avoid any contact with the agar surface.
02. For surface monitoring, flex the cap forming a 90° angle and press each side of the slide firmly against the surface to be examined for 10 seconds. Alternatively, use a swab for sampling the area, afterwards roll the swab gently over the agar surface. For examination of liquids, hold the slide by the cap and immerse it completely into the test fluid.
03. Reinsert the slide into its tube, screw it tight and incubate following conditions specified in an appropriate International Standard (Figure 1).
04. After incubation, microbial growth is evaluated.

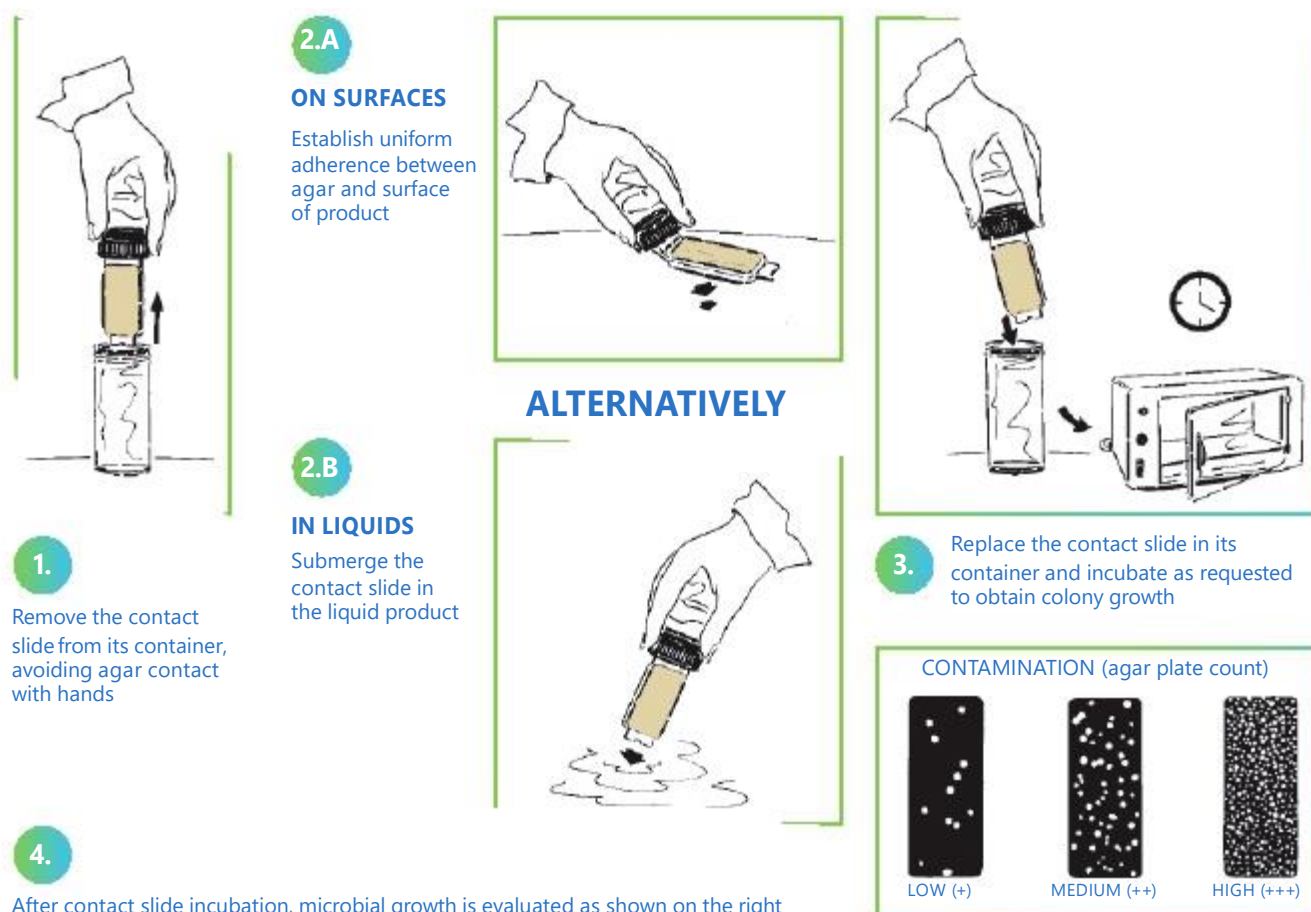


FIGURE 1: Instructions for contact slide use.



Contact slide storage & transportation

The delay between sampling and testing should be as short as possible. Samples should be incubated within 48 hours from sampling, and should be stored and/or transported at 1 to 8 °C without risk of contamination in between. Alternatively, the samples can be transported in insulated transport containers to maintain a consistent temperature, again in a way that no contamination can occur.

Microbiological analysis of the contact slide

Use an appropriate International Standard to incubate the contact slide according to the type of microorganisms to be enumerated. After incubation, the surface contamination can be estimated by counting the number of developed colonies (Figure 2).

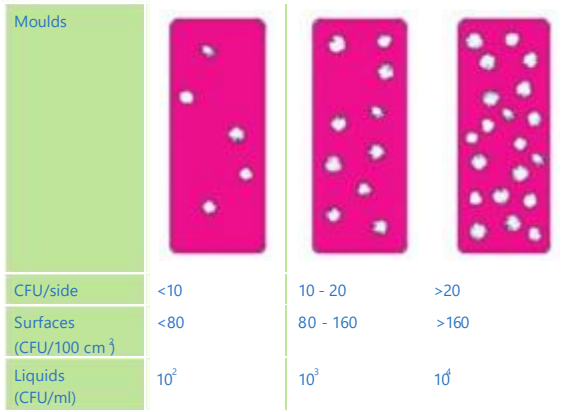
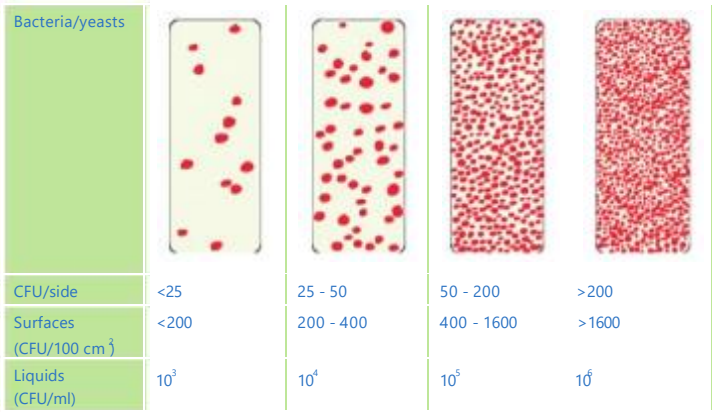


FIGURE 2: Interpretation of contact slide results after incubation.

Expression of results & calculation

Divide the number of characteristic colonies by the surface area of the plate. Report the count as the number of colony-forming units per sampled surface.

P.C. contact slides

Surface and liquid-flexible slides for simple and effective microbiological monitoring and hygiene testing of surfaces and fluids.

- **Two tests with one slide:** Each slide is coated on both sides either with the same agar or with a different agar on each side
- **Long shelf life:** 9 months from production.
- Clear instructions allow a straightforward way to evaluate the microbiological contamination of fluid and surfaces (low, medium or high)
- Specifically formulated for total bacterial count and for detecting yeast and moulds, enterobacteria, *E. coli* and coliform
- Easily used and transported away from the laboratory to control the surfaces of production plants
- Easy to use thanks to the screw cap

Literature

ISO 18593:2018 Microbiology of the food chain - Horizontal methods for surface sampling.



FIGURE 3: Surface sampling PC SPONGES with handle.