ce areas such as
uld be based on
hen the surfaces
hly cleaned and
rganisms should
sampling site. In
ns may be more
For example, the
accharomyces bailii
dressing proces-
nt with respect to
uct. Thus, for the
standards for eval-
ringent than when
n swabbing is per-
ing sanitation pro-
t be based on the
equipment to deter-
on, the objectives of
n of results.

tions, and Media

free of antimicrobial
proximately 5 cm × 5
raft paper bags, and
commercially sterile
roximately 10.2 cm ×
ic bags are suitable for
bling.
utrient broth, or 0.1%
e rinse solution. If the
atty materials, 0.5% to
tory surfactant solution
pment that may contain
of neutralizers in the
mmended (see Section
rate neutralizers in all
rom equipment and the
nd transport media are

ber or plastic gloves, or
ld the sponge aseptically

oximately 10 mL of the
nile holding the sponge
loves, swab the surface to
ping the sponge over the
flat, the rinse solution may
and then taken up into the
An area of several meters
After sampling, place the
astic bag and transport it to
ation. Analyze the sample
ction.[34]

s
sampled with the cellulose
icularly useful for detecting

pathogens (e.g., *Salmonella* or *Listeria*) or spoilage microorganisms in the food plant environment. For *Salmonella or Listeria* analyses, the sponge is introduced directly into an enrichment broth, incubated, and then tested by approved methods for *Salmonella* (see the chapter "*Salmonella*") and *Listeria* (see the chapter "*Listeria*"). In contrast to quantitative plating methods, enrichment-based methods provide the best opportunity for detecting the lowest possible levels of *Listeria* or *Salmonella* contamination.

The sponge sample may be subjected to a variety of microbiological analyses in the same fashion as fabric-tipped swabs. For quantitative analyses, 50–100 mL of diluent are added to the bag containing the sponge. The sponge is then vigorously massaged with diluent for 1 minute or more to release the microorganisms. Aliquots of the diluent are removed from the bag, further diluted if required, and plated into the desired media for the microorganisms in question.

After incubation, the number of microorganisms per unit surface can be calculated on the basis of the area swabbed, the amount of diluent used, and the size of aliquot plated. For example, if 50 colonies are obtained from a 1-mL aliquot derived from a sponge in 100 mL of diluent that swabbed 1 m^2, then the count per milliliter squared will be 5000.

3.824 Interpretation

Interpretation of results from sponge samples obtained from cleaned and sanitized equipment is essentially the same as the interpretation for results obtained from fabric-tipped swabs. The sponge technique has historically been useful in sampling the environment for *Salmonella*.[86] Experience shows it also is useful for *Listeria*.[40] This technique can be used to evaluate the efficacy of cleaning and sanitizing programs for the environment, particularly for foodborne pathogens. Results should obviously always be negative after the application of appropriate cleaning and sanitizing procedures. Sponge swabs can be taken to identify areas that harbor pathogens, and the results can be used to develop a program to control the organisms. The evaluation of results from samples taken of cleaned and sanitized floors and other areas where relatively high residual microbial levels are expected is affected by the history and experience related to particular sites in a plant. As a rule of thumb a 4- to 5-log reduction in the residual microbial level should be obtained on most floor surfaces after cleaning and sanitizing. Another common approach is to assume that large surface areas (e.g., 1 ft^2) are unlikely to have 100,000 or more colony-forming units (CFUs) via the aerobic plate count unless microbial growth has occurred. Such freshly sanitized surfaces should contain aerobic plate counts of less than 100 organisms to 1,000 organisms per sponge and should contain no coliforms, Enterobacteriaceae, yeasts/molds, *Listeria* spp. or *Listeria*-like indicator bacteria that are easily destroyed by appropriate cleaning and sanitization.[59]

3.83 Agar Contact Method[5,47,97]

An agar contact method such as the RODAC plate method provides a simple, valuable contact technique for estimating the sanitary quality of surfaces. The method is recommended particularly when quantitative data are sought from flat, impervious surfaces. It is not intended to be used for crevices or irregular surfaces, although the RODAC