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APPLICATION NOTE

AIR HANDS SURFACES - n. 99/139

CONTINUOUS, PROGRAMMED MICROBIOLOGICAL AIR SAMPLING USING SAS

Principle

The Surface Air System (SAS) air sampler is a tool to collect and concentrate air in order to verify the microbial quality of the air. Usually the air check is performed in a short time in order to collect all the requested volume of air in a single sampling, but in some specific applications, is requested to evaluate the microbial contamination of the air during a long period of time (e.g. during a surgical operation or a production period).

However, agar media cannot sustain more than 1000 - 2000 litres of air without being dehydrated and without loosing its nutritional properties, so is not possible to simple let the instrument sample air during the entire operating conditions (typically hours).
The multi-mode aspiration program is ideal for this specific purpose. The total air volume to be sampled is aspirated with two or more subvolume aspirations (e.g.: 1000 litres in ten runs of 100 litres at five minute intervals).

Before entering 'MULTI-MODE' you should decide the duration of the sampling (depending on the length of your application).

Then you should decide:

a. Total volume of air to be sampled (not recommended more than 1000)
b. Number of runs
c. Interval time between runs. You obtain this value by simply dividing the total duration of the sampling by the number of runs minus one (as the first sampling will start at minute 0)

Procedure

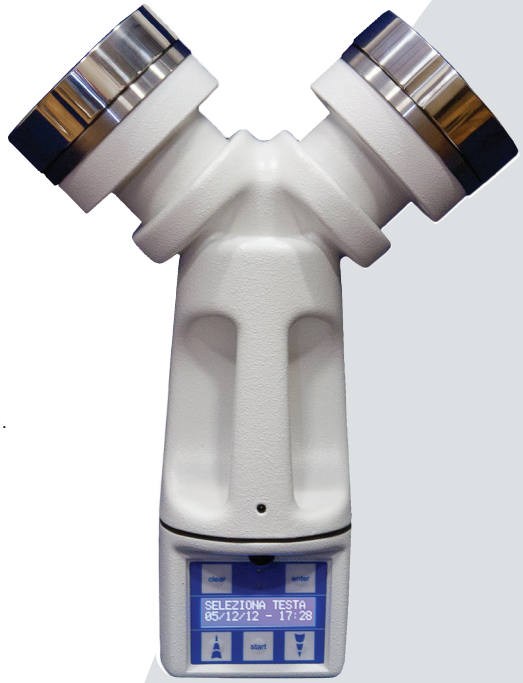
After entering the 'MULTI-MODE' menu you should follow these steps:

a Select the interval time by using the arrows (max. 60 min).
b Select the number of runs (max. 20).
c Select the volume to be sampled for each run (max. 1999).
d Check the total volume. Please consider that a total volume bigger than 1000 litres is not recommended in order to avoid media dehydration.

By simply press 'START' the instrument will start sampling.

Positioning of the instrument

The instrument should be positioned in a spot that is critical for the sterility of the product environment (e.g. near the filling of the final product). On the other hand, if sampling is made during the presence of personnel (e.g. during a surgical operation) the instrument should be positioned in a spot that will not interfere with the activity of the personnel. Consider using a tripod to ensure that the instrument is not knocked over by personnel.



Taking two samples at the same time

We suggest making at least two samples for each spot in order to obtain more robust data. The best solution is having an instrument with two heads.
Alternatively you can check total bacteria with one head (using TSA agar) and yeast and moulds with the other (using SDA agar), so you'll have complete information on the microbial contamination of your environment.

EXAMPLES

Application 1:

Microbiological evaluation of the air during a 3 hours long surgical operation.

- According to guidelines the recommended volume to be sampled is 1000 litres
- Number of runs: 15 runs. Depending on your requirement you can choose a different number
- Select interval time: 3 hours is 180 minutes, so 180 / (15-1) = 12,85 minutes. Set 12 minutes
- Volume for each run: 1000 litres / 15 runs: 66,67. Set 67 litres
- Total volume: 67x15 = 1005 litres
- Total time duration: 15x(12-1) = 165 minutes + time to sample 1005 litres (roughly 6 minutes with a SAS 180)

Application 2:

Microbial evaluation of air in a cleanroom during a days work with personnel inside - 4 hours

- cGMP recommend sampling 1000 litres
- Number of runs: As the sampling duration is quite long we suggest 20 runs
- Select interval time: 4 hours is 240 minutes, so 240 / (20-1) = 12,63 minutes. Set 12 minutes
- Volume for each run: 1000 litres / 20 runs: 50 litres
- Total volume: 20x50 = 1000 litres
- Total time duration: 12x(20-1) = 228 minutes + time to sample 1005 litres (roughly 6 minutes with a SAS 180)

Application 3:

Microbial evaluation in a food production site during the filling of the final product - 1 hour

- As the suggested limit of CFU per cubic meter is 500, we recommend a volume of 200 litres
- Number of runs: As the sampling duration is quite short we can suggest 7 runs
- Select interval time 60 minutes / (7-1) = 10 minutes
- Volume for each run: 200 litres / 7 runs: 28,57 litres, set 29 litres
- Total volume: 29x7 = 203 litres
- Total time duration: 10x(7-1) = 60 minutes + time to sample 203 litres (slightly more than 2 minutes with a SAS 180)

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