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)

Descrizione	L×P×A	Conf	Per	Codice catalogo
Valigetta di trasporto morbida	-	1	SAS Super ISO 180, SAS Super ISO 100	710-0896
Valigetta di trasporto in alluminio	-	1	SAS Super IAQ, SAS Super ISO 180, SAS Super ISO 100	710-0875
Stativo da pavimento	-	1	SAS Super IAQ, SAS Super ISO 180, SAS Super ISO 100, DUO SAS Super 360	710-1857
Manuale OQ	-	1	SAS Super ISO 180, SAS Super ISO 100	710-0956
Testata di aspirazione in acciaio inox per piastre a contatto, Ø 55 mm	-	1	SAS ISO 180, SAS ISO 100, DUO SAS Super 360, SAS Super Isolator	710-0880
Testata di aspirazione in acciaio inox per piastre Petri, Ø 90 mm	-	1	SAS Super ISO 180, SAS Super ISO 100, DUO SAS Super 360, SAS Super Isolator	710-0878
Testata e adattatore in acciaio inox per piastre Petri, Ø 90 mm	-	1	SAS Super ISO 180, SAS Super ISO 100, DUO SAS Super 360, SAS Super Isolator	710-0877
Testata di aspirazione in alluminio per piastre a contatto, Ø 55 mm	-	1	SAS Super IAQ, SAS Super ISO 180, SAS Super ISO 100, DUO SAS Super 360	710-0892
Testata e adattatore in alluminio per piastre Petri, Ø 90 mm	-	1	SAS Super IAQ, SAS Super ISO 100, SAS Super ISO 180, DUO SAS Super 360	710-0879
Testata monouso sterile Daily-Head per capsule di Petri, Ø 90 mm	-	40	SAS Super IAQ, SAS Super ISO 180, SAS Super ISO 100, DUO SAS Super 360	710-0891
Camera di aspirazione per piastre a contatto da 55 mm (senza testa)	-	1	SAS Super Isolator	710-0947
Camera di aspirazione per piastre di Petri da 90 mm (senza testa)	-	1	SAS Super Isolator	710-0948

Caricabatterie con spina universale	-	1	SAS Super Isolator, DUO SAS Super 360, DUO SAS 360 Isolator, SAS Super IAQ	710-0993
Dispositivo di download per 710-0970	-	1	SAS Super ISO	710-0971
Finished plate holder 7 mm	-	3	SAS Super ISO 180, SAS Super ISO 100	PBIB90180
Manico in acciaio inossidabile	-	1	-	113-8186
Manuale IQ, OQ, PQ	-	1	SAS Super Isolator	710-0954
Sistema di trasporto di sicurezza	184×368×171 mm	1	-	113-8185
Software per il download dei dati	-	1	SAS Super ISO	710-0970
Supporto in acciaio inox per tavolo e parete	-	1	SAS Super ISO 180, SAS Super ISO 100, DUO SAS Super 360	710-0963
Telecomando a infrarossi	-	1	SAS Super ISO	710-0969
Testata monouso sterile Daily-Head per piastre a contatto, 55 mm	-	40	SAS Super IAQ, SAS Super ISO 180, SAS Super ISO 100, DUO SAS Super 360, SAS Super Isolator	710-0890
Treppiedi trasparente, treppiedi da pavimento in acciaio inossidabile	-	1	SAS Super IAQ	710-0889
Valigetta di trasporto in alluminio, custodia leggera	-	1	SAS Super ISO 180, SAS Super ISO 100	710-1697