User manual

NBB®-B-AM (Product No. 2.04706.782)

1. Information

Nutrient medium for the detection of
Biofilm-specific indicator microorganisms
for weak point analysis and analysis of weak spots in production and filling facilities.

NBB®-Broth-Enrichment-Medium (NBB®-B-AM) (pH 5.75 ± 0.15) is a ready-to-use broth for qualitative detection of indicator microorganisms using swab sampling with sterile swabs as part of microbiological facility monitoring. It is used for the analysis of weak spots in filling and production sites and as an enrichment media for further analyses.

2. Handling

Required Material
Microbiological workbench
Incubator
Sterile swabs and
Sterile test tubes with screw caps or
Ready to use sterile swab tubes (if possible with screw stopper)
Test tube holder

Application
Be aware to work under sterile conditions in order to prevent secondary contaminations.

Please avoid heating the NBB®-B-AM since it contains heat sensitive components. Use sterile swabs and sterile test tubes with screw caps or ready-to-use sterile swab tubes.
Be careful not to touch the wadding of the swab or the swab stick directly to avoid contamination. After removing the plastic foil from the swab (ready-to-use swabs), only touch the unsterile screw cap. Gently wipe the area to be analysed with the swab and place it immediately into the swab tube and close it with the screw cap. Fill the tubes subsequently with approx. 10 mL NBB®-B-AM (wadding should be completely immersed in broth).

In the production area the weak spots of the beverage circuit and contact areas (caps, pumps, CO_2-lines, by-passes, tank interior and others) are checked for biofilms with sterile swabs. Provided that detected contaminations are correctly eliminated, it is sufficient to check these areas every 3 or 6 months.

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this version replaces all previous versions.

In the filling and packaging area the weak spots are checked with sterile swabs in the direct and indirect contact area of the soaker discharge, of the bottle inspector and particularly of the filler and capper. Focus on starwheels, conveyors, gears and inner surfaces in the filler area, specially those places with an abundant water and product contact, the main niches of contamination that cause secondary infections.

A sampling routine could be:

- Soaker
  - mainly on the washer head where condensed water is seen
- Bottle inspector
  - Starwheels
  - Bottle conveyor
  - Other moist spots
- Filler
  - Filling tube
  - Control valves
  - Bells
  - Lifters
  - Feed form
  - Starwheel surface
  - Starwheel, inside
  - Baffles
  - Panellings/girders
  - Guideway of plastic rail
- Capper
  - Guide rods
  - Piston
  - Crowner-inlet rail, plate
  - Panelling
  - Starwheels
  - Bottle conveyor

By experience it has been found that the hygienic conditions can be very well ascertained taking at least once a week 20-30 swabs from each filling line.
After the smear test is taken, place the swab into approx. 10 ml NBB®-B-AM in the sterile test tube (wadding should be completely immersed in broth). Be careful to adapt the length of the swab to the length of the tube to close tube firmly. Place test tube in holder for incubation.

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Incubation
Incubate the swabs for a maximum of 3 days at 25-29°C/77-84°F under aerobic conditions.

Evaluation
If the contaminations are high enough and if the organisms are typical beer spoilers, the colour of the indicator in the samples will turn from red to yellow.
Since the speed of the microbial growth depends on several factors (initial cell count, type, physiological condition and origin of the germs, degree of adaptation to beer), an incubation time of one day may be sufficient, in case of high contaminations, to obtain a result. Mostly several days are needed in case of trace contaminations or of very slow growing strains. Observe the growth-pattern during incubation time to obtain clear statements about the condition of your sample. Evaluate after 3 days of incubation for a final comparability of your results (Fig. 1).

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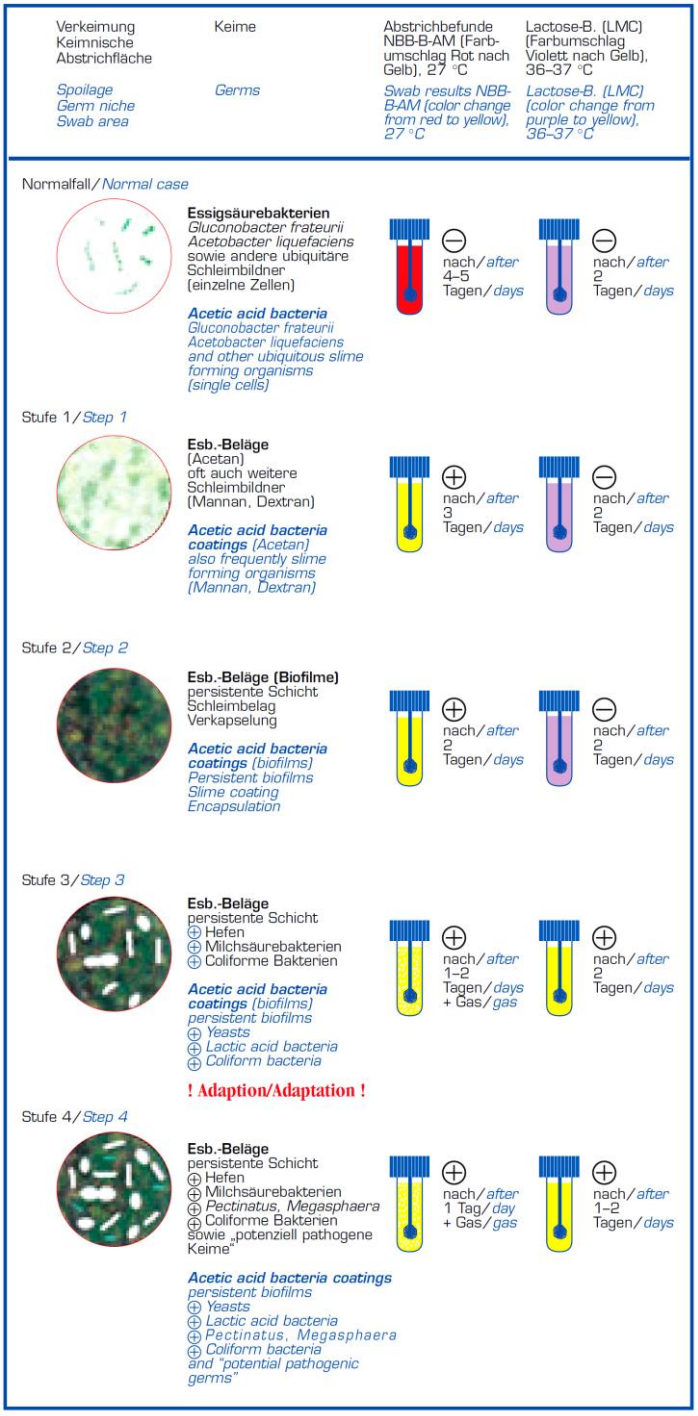

Fig. 1 Generation of beverage spoiling microorganisms.

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If within a period of several weeks an average less than 20% of the findings in the filling area is positive with NBB®-B-AM, the biological condition can be considered satisfactory. Higher number of positive results, or their trend to increase, point at stiff and persistent biofilms, in which spoiling organisms or other problematic germs will start to adapt themselves and to grow (Fig.2).

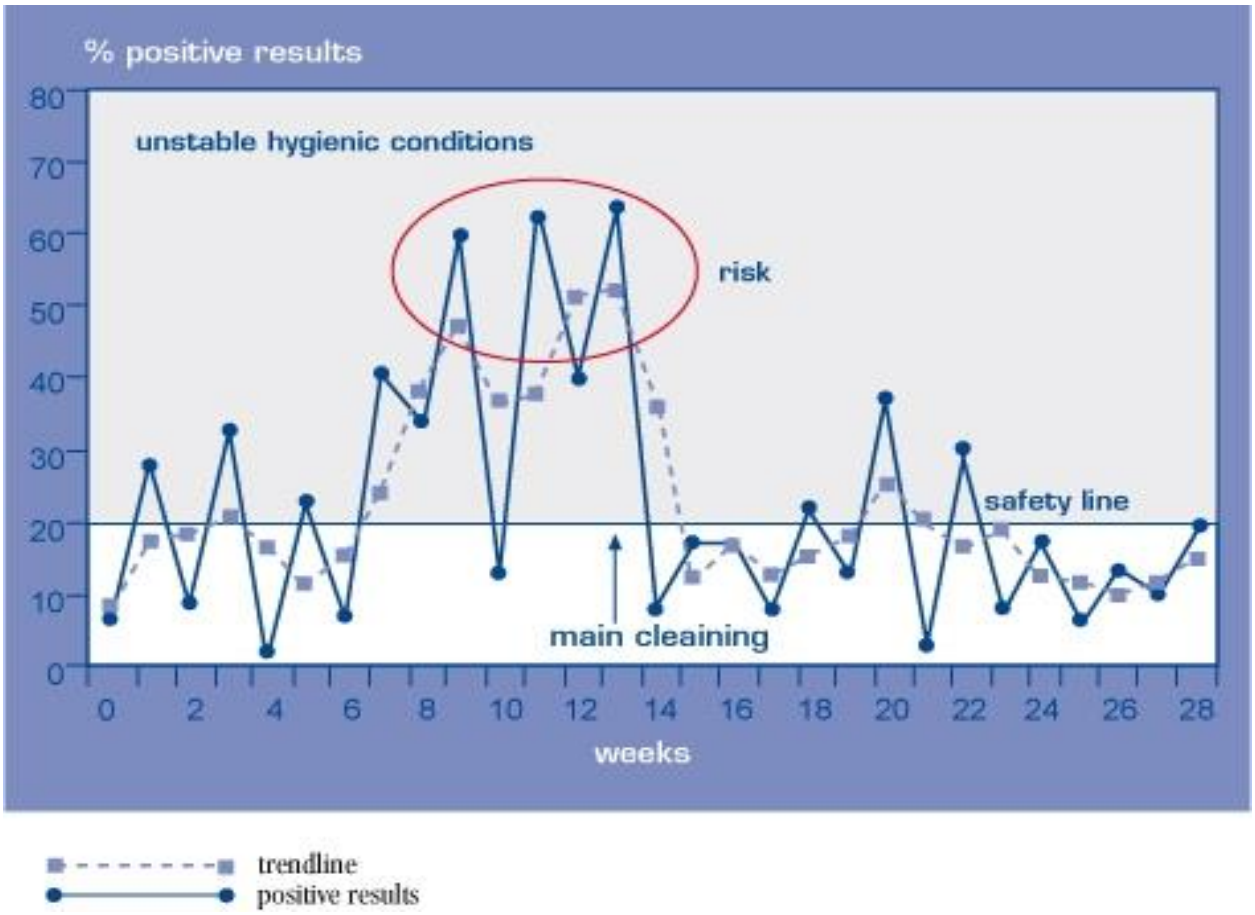

Fig. 2 Documentation of the weekly results in the bottling area

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3. Storage and Packaging Information

Packaging and Content

unit	Cardboard Box (9x250 ml in glass bottles)
unit size (Box)	approx. 22 cm x 22 cm x 18 cm / 8.7 in x 8.7 in x 7.1 in
unit gross weight (Box)	approx. 4.1 kg/ 9 lbs.

Storage

Store at 4-8°C/40-46°F according to product specification.
Store under dry and dark conditions. Do not freeze product.

Waste Disposal

No dangerous good.
No hazardous material.
Please consider your local waste regulations.
Not inoculated broth can be disposed of with normal laboratory waste.
Inoculated and incubated samples are to be sterilized before disposal at a temperature of 121°C/ 250°F for 20 min.

Warnings

Don't cook or freeze the product. Please avoid heating the NBB®-B-AM since it contains heat sensitive components.

4. Related products

Investigation material	Relevant target microorganisms	Product	Format	Description	Packaging	pH	Incubation T[°C]	Item no.
Productions and filling facilities Validation of aseptic filling facilities	**Beverage-specific microorganisms** Yeasts Bacteria Moulds	**AVM®**	Broth	Liquid Linden Grain medium for qualitative detection as part of validation of aseptic filling facilities	min. 3 to (tank)	4.0 – 4.4	26-30	2.04705.050
		AVM®	Powder	Powder for production of AVM®-broth – liquid Linden Grain medium	20 kg (bucket)	4.0 – 6.5		2.04704.872
		AVM®	Concentrated Broth	Concentrated liquid Linden Grain medium for production of AVM®-broth	min. 3 to (container)	max. 5.0		2.04755.521
Weak point analysis and analysis of weak spots	**Biofilm-specific indicator microorganisms**	**NBB®-B-AM**	Broth	Culture medium for qualitative detection of indicator microorganisms using swab sampling with sterile swabs as part of microbiological facility monitoring	9 x 250 mL (glass bottle)	5.6-5.9	25-29	2.04706.782