



User manual

NBB[®]-A (Product No. 2.04709.782)

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1. Information

Nutrient media for the detection of

Beer-spoiling microorganisms (esp. Lactobacilli, Pediococci, Pectinatus and Megasphaera)

in filtered beer samples.

NBB[®]-Agar (NBB[®]-A) (pH 5.75 ± 0.15) is a ready-to-use agar for a fast and safe detection of beer spoiling microorganisms in the brewing industry. Due to the selectivity of the NBB[®]-media the harmless accompanying flora as the culture yeasts will be inhibited. NBB[®]-A can be used in the pour plate method or as a nutrient base for membrane filters and microbial spreading. NBB[®]-A is specially designed for filtered beer, rinse water and air samples.

2. Handling

Required Material

Water bath (max. temp. 95°C/203°F)

Microbiological workbench

Petri dish

Sterile swabs, inoculation loop or Drigalski spatula for microbial spreading

Incubator for anaerobic samples

Container/vessel for the anaerobic incubation of the agar plates

Application

Please handle the samples under sterile conditions to avoid secondary contamination.

Liquefy the closed bottle with culture media in a water bath at max 95°C/203°F. Cool it for use to approx. 45°C/113°F.

For the pour plate method:

Place 3 mL of the test sample in a 9 cm Petri dish and fill up with the fluid and warm agar to a height of 3-4 mm. Swirl the mixture gently by moving the closed Petri dish in a rotation following a "8" -figure on the workbench.

As a Nutrient base:

Fill the fluid and warm culture media into a Petri dish to a height of 3-4 mm. Cool the dish until the NBB[®]-Agar solidifies and use it for

- membrane filters by placing the filter on top of the agar,
- for microbial spreading with sample swabs, inoculation loops or a Drigalski spatula or
- for air samplers



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Incubation

Place the test sample into an incubator between 26-28°C/79-82°F and incubate in anaerobic conditions for 5 days.

Evaluation

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 (e.g. *Lactobacillus lindneri*). Observe the growth-pattern during incubation time to obtain clear statements about the condition of your sample. Evaluate after 5 days of incubation for a final comparability of your results.

If the contaminations are strong enough and if the organisms are typical beer spoilers, the colour of the indicator in NBB[®]-A will turn from red to yellow.

In case of trace contaminations, the indicator colour may not be evident enough. In this case the samples have to be examined under the microscope to get clear results.

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 agar can be disposed 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

Do not cook or freeze the culture media. Do not keep the agar liquified longer than 4 h.

Repeated heating can restrain its functionality. Always wear protective clothing when handling hot media.



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4. Related products

Sample type	Product	Format	Method	Item no.	Packaging	Incubation			Analysis
						T [°C]	t [d]	Condition	
Yeast samples Selected, harvested and brewing yeast Yeast sediments	NBB®-B	Broth in bottle	0.5-1 ml of sample + 10-20 ml of NBB®-B	2.04710.782	9 x 250 ml (glass bottle)	28°C	3-5	anaerobic	qualitative
		Broth in tubes		2.04723.646	20 x 10 ml (tube)				
Yeast-cloudy beers Green beer Unfiltrate Wheat beer	NBB®-C	Concentrated broth	95 % of sample + 5 % of NBB®-C	2.04711.782	9 x 250 ml (glass bottle)	28°C	7-14	anaerobic	qualitative
Clear beers Membrane filtered samples	NBB®-A	Agar	Filtration of 50-200 ml of sample	2.04709.782	9 x 250 ml (glass bottle)	28°C	5-7	anaerobic	quantitative
Water, rinsing water Membrane filtered samples	NBB®-A	Agar	Filtration of 50-200 ml of sample	2.04709.782	9 x 250 ml (glass bottle)	28°C	5-7	anaerobic	quantitative
Environmental air Sampling of airborne microorganism on agar plates	NBB®-A	Agar	Direct sampling	2.04709.782	9 x 250 ml (glass bottle)	28°C	5-7	anaerobic	quantitative
Surfaces in filling plants Hygiene monitoring using swabs	NBB®- B-AM	Broth	1 swab in 10 ml of NBB®-B-AM	2.04706.782	9 x 250 ml (glass bottle)	28°C	3	aerobic	qualitative
	NBB®-P	Powder	For the in-house production of NBB®-A and NBB®-B, using beer from own production.	2.04716.462	300 g (bag)				
Laboratory accessories	Smear swabs, without tube			2.04725.444	100 pc. (bag)				