

## Technical Data Sheet

### NutriSelect® prime

### YGC/OGY Agar (base) halal (Yeast extract Glucose Agar base) without antibiotics, acc. ISO 6611 I IDF 94

Ordering number: 1.04327.0500

For enumeration of yeasts and moulds in milk, dairy products and other food and feeding stuff as well as from environmental samples in the area of food production and food handling.

YGC/OGY Agar (base) is also known as Yeast Extract Glucose Chloramphenicol (YGC) Agar when supplemented with Chloramphenicol and as Oxytetracycline Glucose Yeast Extract (OGY, OGYE) Agar when supplemented with Oxytetracycline.

This culture medium complies with the specifications given by ISO 6611 I IDF 94 and APHA.

The Halal Certificate is issued by Halal Quality Control (HQC) according to Reference Halal standards: JAKIM MS 1500:2019, MUI HAS 23000, OIC/SMIIC1:2019, GSO 2055-1.

This culture medium is released by the quality control laboratory of Merck KGaA, Darmstadt, Germany. The laboratory is accredited by the German accreditation authority DAkkS as registered test laboratory D-PL-15185-01-00 according to DIN EN ISO/IEC 17025 for the performance testing of media for microbiology according to DIN EN ISO 11133.

### Mode of Action

This culture medium base forms a selective medium for enumeration of moulds and yeasts when supplemented with chloramphenicol or oxytetracycline.

It contains yeast extract for supplying the B-complex vitamins. Glucose provides an energy source for the growth of yeasts and moulds whilst agar is the solidifying agent.

The supplementation with the antimicrobial agents chloramphenicol (YGC Agar) or oxytetracycline (OGY Agar) inhibits the growth of bacteria.

## Typical Composition

APHA specifies no composition for YGC/OGY Agar (base).

| Specified by<br>ISO 6611 I IDF 94    |           | NutriSelect® prime<br>YGC/OGY Agar (base) halal<br>(Yeast extract Glucose Agar<br>base) without antibiotics,<br>acc. ISO 6611 I IDF 94 |           |
|--------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Yeast extract powder                 | 5.0 g/l   | Yeast extract                                                                                                                          | 5.0 g/l   |
| Dextrose                             | 20.0 g/l  | D(+)Glucose*                                                                                                                           | 20.0 g/l  |
| Agar                                 | 10-15 g/l | Agar-Agar**                                                                                                                            | 15.0 g/l  |
| Water                                | 1000 ml/l | Water                                                                                                                                  | n/a       |
| <b>Supplementation for YGC Agar:</b> |           |                                                                                                                                        |           |
| Chloramphenicol                      | 0.10 g/l  | Chloramphenicol                                                                                                                        | 0.10 g/l  |
| <b>Supplementation for OGY Agar:</b> |           |                                                                                                                                        |           |
| Oxytetracycline                      | 0.10 g/l  | Oxytetracycline                                                                                                                        | 0.10 g/l  |
| pH at 25 °C                          | 6.6 ± 0.2 | pH at 25 °C                                                                                                                            | 6.6 ± 0.2 |

\* Glucose is equivalent to the term Dextrose.

\*\* Agar-Agar is equivalent to other different terms of agar.

## Preparation

**Preparation of YGC agar:** Dissolve 40.0 g in 1 liter of purified water and add 0.1 g chloramphenicol, Cat No. 220551. Heat in boiling water and agitate frequently until completely dissolved. Autoclave (15 minutes at 121°C). Mix well and pour to plates.

For YGC agar acc. ISO 6611 I IDF 94, the final concentration of chloramphenicol is 0.1 g per liter.

**Preparation of OGY agar:** Dissolve 20.0 g in 500 ml of purified water. Heat in boiling water and agitate frequently until completely dissolved. Autoclave (15 minutes at 121°C). Cool the medium to 45-50 °C and aseptically add the content of 1 vial OGYE Selective Supplement (Oxytetracycline), Cat. No. 109877. Mix thoroughly and pour plates.

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For OGY agar acc. ISO 6611 I IDF 94, the final concentration of oxytetracycline is 0.1 g per liter.

If the medium is to be used immediately for poured plate technique, cool it to 44-47 °C in a water bath before use. Use the molten medium as soon as possible, it should not be retained for more than 4 h, as specified by EN ISO 11133.

If the medium is used for surface plating technique, allow the prepared medium to equilibrate at room temperature if it was stored at a lower temperature. There should be no visible moisture on the plates before use. When moisture is present, the plates should be dried for the minimum time required to remove visible moisture, following the procedure as described by EN ISO 11133.

The dehydrated medium is a powder with brown colour.

The prepared medium is clear to slightly opalescent and yellowish-brown. The pH value of the base medium and of the medium supplemented with chloramphenicol at 25 °C is in the range of  $6.6 \pm 0.2$ .

## Experimental Procedure and Evaluation

Depend on the purpose for which the medium is used.

Incubate the inoculated plates under aerobic conditions, e.g. acc. to ISO 6611 I IDF 94 at  $(25 \pm 1)$  °C for 5 days in an upright position.

## Storage

Store at +15 °C to +25 °C, dry and tightly closed. Do not use clumped or discolored medium. Protect from UV light (including sun light). For *in vitro* use only.

According to Engel (1982), self-prepared YGC/OGY Agar (base) and YGC Agar with Chloramphenicol can be stored at +2 to +8 °C in the dark and protected against evaporation for up to four months.

According to Corry et al. (2012), self-prepared OGY Agar with Oxytetracycline can be stored at  $(5 \pm 3)$  °C in the dark for up to 7 days.

## Quality Control

| YGC Agar with chloramphenicol                               |                                          |                               |                                       |                           |
|-------------------------------------------------------------|------------------------------------------|-------------------------------|---------------------------------------|---------------------------|
| Control strains                                             | Incubation                               | Reference medium              | Method of control                     | Expected results          |
| <i>Candida albicans</i><br>ATCC® 10231 [WDCM 00054]         | up to 5 days at<br>25 ± 1 °C,<br>aerobic | Sabouraud<br>Dextrose<br>agar | Quantitative<br>by<br>surface plating | Recovery<br>rate<br>≥50 % |
| <i>Saccharomyces cerevisiae</i><br>ATCC® 9763 [WDCM 00058]  |                                          |                               |                                       |                           |
| <i>Penicillium commune</i><br>ATCC® 10428 [WDCM 00053]      |                                          |                               |                                       |                           |
| <i>Aspergillus brasiliensis</i><br>ATCC® 16404 [WDCM 00053] |                                          |                               |                                       |                           |
| <i>Escherichia coli</i><br>ATCC® 8739 [WDCM 00012]          | 5 days at<br>25 ± 1 °C,<br>aerobic       | -                             | Qualitative<br>streaking              | total<br>inhibition       |
| <i>Enterococcus faecalis</i><br>ATCC® 19433 [WDCM 00009]    |                                          |                               |                                       | total<br>inhibition       |
| OGY agar with OGYE selective supplement                     |                                          |                               |                                       |                           |
| Control strains                                             | Incubation                               | Reference medium              | Method of control                     | Expected results          |
| <i>Candida albicans</i><br>ATCC® 10231 [WDCM 00054]         | up to 5 days at<br>25 ± 1 °C,<br>aerobic | Sabouraud<br>Dextrose<br>agar | Quantitative<br>by<br>surface plating | Recovery<br>rate<br>≥50 % |
| <i>Saccharomyces cerevisiae</i><br>ATCC® 9763 [WDCM 00058]  |                                          |                               |                                       |                           |
| <i>Penicillium commune</i><br>ATCC® 10428 [WDCM 00053]      |                                          |                               |                                       |                           |
| <i>Aspergillus brasiliensis</i><br>ATCC® 16404 [WDCM 00053] |                                          |                               |                                       |                           |
| <i>Escherichia coli</i><br>ATCC® 8739 [WDCM 00012]          | 5 days at<br>25 ± 1 °C,<br>aerobic       | -                             | Qualitative<br>streaking              | total<br>inhibition       |
| <i>Enterococcus faecalis</i><br>ATCC® 19433 [WDCM 00009]    |                                          |                               |                                       | total<br>inhibition       |

Please refer to the actual batch related Certificate of Analysis.

The performance tests are in accordance with the current version of EN ISO 11133.

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## Literature

APHA (2015) Compendium of Methods for the Microbiological Examination of Foods. 5<sup>th</sup> ed. American Public Health Association, Washington, D.C.

APHA (2004) Standard Methods for the Examination of Dairy Products. 17<sup>th</sup> ed. American Public Health Association, Washington, D.C.

ISO International Standardisation Organisation. IDF International Dairy federation. Milk and milk products — Enumeration of colony-forming units of yeasts and/or moulds — Colony-count technique at 25 °C. ISO 6611 I IDF 94:2004.

ISO International Standardisation Organisation. Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media + Amendment 1 + Amendment 2. EN ISO 11133:2014/Amd1:2018/Amd2:2020.

Corry, J.E.L., Curtis, G.D.W. and Baird, R.M. (2012): Oxytetracycline Glucose Yeast extract (OGY) agar. In: Handbook of Culture Media for Food and Water Microbiology, pp. 863-865. Royal Society of Chemistry, Cambridge, UK.

Engel. G. (1982): Vergleich verschiedener Nährböden zum quantitativen Nachweis von Hefen und Schimmelpilzen in Milch und Milchprodukten - Comparison of different media for the quantitative determination of yeasts and moulds in milk and milk products. Milchwissenschaft **37**: 727-730.

Mossel, D.A.A., Visser, M. and Mengerink, W.H.J. (1962): A comparison of media for the enumeration of moulds and yeasts in foods and beverages. Lab Pract. **11**: 109-112.

Mossel, D.A.A., Kleynen-Semmeling, A.M.C., Vincentie, H.M., Beerens, H. and Catsaras, M. (1970): Oxytetracycline-glucose-yeast extract agar for selective enumeration of moulds and yeasts in foods and clinical material. J. Appl. Bacteriol. **33**: 454-457.

## Ordering Information

| Product                                                                                                                       | Cat. No.                                    | Pack size              |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------|
| NutriSelect® prime<br>YGC/OGY Agar (base) halal (Yeast extract Glucose Agar base) without antibiotics, acc. ISO 6611 I IDF 94 | 1.04327.0500                                | 500 g                  |
| Chloramphenicol                                                                                                               | 220551-25GM<br>220551-100GM<br>220551-500GM | 25 g<br>100 g<br>500 g |
| OGYE Selective Supplement (Oxytetracycline)                                                                                   | 1.09877.0010                                | 10x 1 vial             |

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