

TECHNICAL DATA SHEET

Article No. 8425

Plate Count Agar (PCA)

SYNONYMS

Trypticase Glucose Yeast Agar, Standard Methods Agar

SPECIFICATION

Medium for aerobic plate counts by the surface inoculation method, according to ISO standards 4833, 8552, 17410 and IFU no. 6.

FORMULA* IN G/L

Casein peptone	5.0
Yeast extract	2.5
Dextrose	1.0
Agar	15.0

Final pH 7.0 ±0.2 at 25 °C

*Adjusted and/or supplemented as required to meet performance criteria.

DIRECTIONS

Suspend 23.5 g of powder in 1 l of distilled water. Heat to boiling with frequent stirring. Distribute into suitable containers and sterilize by autoclaving at 121 °C for 15 minutes.

DESCRIPTION

The Plate Count Agar formulation is according to that of Buchbinder et al. as recommended in their study of media for the plate count of microorganisms.

The original formulation of the standardized agar for dairy microbiology has been modified in order to avoid the addition of milk. This new composition allows the growth of most microorganisms without any further additions. This medium's formulation is equivalent to that described by the 'Standard Methods for the Examination of Dairy products', the USP's 'Tryptone Glucose Yeast Agar', the Deutsche Landwirtschaft and to the APHA and AOAC's Plate Count Agar. This is the medium of choice for the plate count of any type of sample.

Th. Geyer GmbH & Co. KG

Dornierstr. 4 – 6
D-71272 Renningen
Tel.: +49 7159 1637-0
Fax: +49 7159 1637-710
renningen@thgeyer.de
www.thgeyer.de

BW-Bank (Swift/BIC SOLADEST600)
IBAN DE85600501010002036302
Postbank Stuttgart (Swift/BIC PBKDEFFXXX)
IBAN DE3260010070000020708
Deutsche Bank (Swift/BIC DEUTDESSXXX)
IBAN DE06600700700125518100

St.-Nr. 70093/40018 / USt-IdNr. DE147510304
Amtsgericht Stuttgart / HRA-Nr. 254140
Persönlich haftende Gesellschafterin:
Geyer Beteiligungsgesellschaft mbH
Amtsgericht Stuttgart / HRB-Nr. 252035
Geschäftsführer: Lutz-Alexander Geyer / Thomas Roth

TECHNIQUE

Prepare 10-fold serial dilutions of the sample and take 1 ml aliquots from each dilution (in duplicates) and put them into sterile Petri plates. Pour approx. 20 ml of sterile cooled medium (around 45 °C) in each of the plates. Mix gently by swirling the plate in the form of a figure 8. Leave the plates undisturbed to solidify and incubate in an inverted position. The incubation time and temperature depend on the type of microorganism under study. For a general aerobic count, incubate for 3 days at 30 °C. Taking readings after 24, 48 and 72 hours.

The plate count method proposed by the APHA consists of pouring the molten agar at 50 °C on plates containing the diluted samples (pour plate technique). The final count is carried out after 48 hours of incubation at 32-35 °C. For microorganisms with other temperature requirements, the following incubations have been suggested: 2 days at 32-35 °C, 2-3 days at 45 °C, 2 days at 55 °C, 3-5 days at 20 °C, 7-10 days at 5-7 °C.

Sample dilutions are prepared with 1/4 Ringer's solution, buffered Peptone Water, or Maximum Recovery Diluent depending on their nature.

The poured plate count method is preferred to the spread plate technique, since it gives higher counts. Nevertheless, the latter facilitates isolation and reseeded of the colonies.

QUALITY CONTROL

- Incubation temperature: 30 ±1 °C
- Incubation time: 72 ±3 h
- Inoculum: Practical range 100 ±20 CFU. Min. 50 CFU (productivity), according to ISO 11133:2014. Spiral Plate Method.

Microorganism	Growth	Remarks
<i>Bacillus subtilis</i> ATCC® 6633	Productivity >0.70	None
<i>Staphylococcus aureus</i> ATCC® 25923	Productivity >0.70	None
<i>Listeria monocytogenes</i> ATCC® 35152	Productivity >0.70	None
<i>Escherichia coli</i> ATCC® 8739	Productivity >0.70	None

REFERENCES

- ATLAS, R.M. & L.C. PARKS (1993) Handbook of Microbiological Media. CRC Press, Inc. London.
- BUCHBINDER, L., Y. BARIS & L. GOLDSTEIN (1953) Further studies on new milk-free media for the standard plate count of dairy products. Am. J. Public Health 43:869-872.
- CLESCERI, L.S., A.E. GREENBERG and A.D. EATON (1998) Standard Methods for the Examination of Water and Wastewater. 20th ed., APHA, AWWA, WPCF. Washington.
- DIN 10192 (1971) Prüfungsbestimmungen für Milch und Milcherzeugnisse. Deutsche Landwirtschaft, Fachbereit und Ernährung.

Th. Geyer GmbH & Co. KG

Dornierstr. 4 – 6
D-71272 Renningen
Tel.: +49 7159 1637-0
Fax: +49 7159 1637-710
renningen@thgeyer.de
www.thgeyer.de

BW-Bank (Swift/BIC SOLADEST600)
IBAN DE85600501010002036302
Postbank Stuttgart (Swift/BIC PBNKDEFFXXX)
IBAN DE32600100700000020708
Deutsche Bank (Swift/BIC DEUTDESSXXX)
IBAN DE06600700700125518100

St.-Nr. 70093/40018 / USt-IdNr. DE147510304
Amtsgericht Stuttgart / HRA-Nr. 254140
Persönlich haftende Gesellschafterin:
Geyer Beteiligungsgesellschaft mbH
Amtsgericht Stuttgart / HRB-Nr. 252035
Geschäftsführer: Lutz-Alexander Geyer / Thomas Roth

- DOWNES, F.P. & K. ITO (2001) Compendium of Methods for the Microbiological Examination of Foods. 4th ed., APHA, Washington.
- FIL/IDF Standards 3 (1958), 100, 101 (1981), 109 (1982) and 132 (2004).
- HORWITZ, W. (2000) Official Methods of Analysis. AOAC International. Gaithersburg.
- IFU Method No 6 (1996) Mesophilic, thermophilic and thermophilic bacteria: Spores Count. D-1 Mesophilic Aerobic Sporeforming bacteria: Spores count.
- ISO 4833 (2003) Microbiology of food and animal feeding stuffs. Horizontal method for the enumeration of microorganisms. Colony count technique at 30°C.
- ISO 8552 (2004) Milk - Estimation of psychrotrophic microorganisms. Colony count technique at 21°C (Rapid method).
- ISO 11133:2014. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
- ISO 17410 (2001) Horizontal method for the enumeration of psychrotrophic microorganisms.
- MARSHALL, R.T. (1992) Standard Methods for the Examination of Dairy Products. 16th ed. APHA. Washington.
- PASCUAL ANDERSON. M^a.R^o. (1992) Microbiología Alimentaria. Díaz de Santos, S.A. Madrid.

STORAGE

Keep tightly closed, away from light, in a dry place (4-30 °C).

SHELF LIFE

5 years from date of production.

Th. Geyer GmbH & Co. KG

Dornierstr. 4 – 6
D-71272 Renningen
Tel.: +49 7159 1637-0
Fax: +49 7159 1637-710
renningen@thgeyer.de
www.thgeyer.de

BW-Bank (Swift/BIC SOLADEST600)
IBAN DE85600501010002036302
Postbank Stuttgart (Swift/BIC PBNKDEFFXXX)
IBAN DE32600100700000020708
Deutsche Bank (Swift/BIC DEUTDESSXXX)
IBAN DE06600700700125518100

St.-Nr. 70093/40018 / USt-IdNr. DE147510304
Amtsgericht Stuttgart / HRA-Nr. 254140
Persönlich haftende Gesellschafterin:
Geyer Beteiligungsgesellschaft mbH
Amtsgericht Stuttgart / HRB-Nr. 252035
Geschäftsführer: Lutz-Alexander Geyer / Thomas Roth