

DRBC Agar (ISO) (NCM0082)

Intended Use

Dichloran Rose Bengal Chloramphenicol (DRBC) Agar (ISO) is for the enumeration of viable yeasts and molds in products intended for human consumption or as animal feed as described in ISO 21527-1:2008. DRBC Agar (ISO) is not intended for use in the diagnosis of disease or other conditions in humans.

Description

A selective agar for the enumeration of viable yeasts and molds in products intended for human consumption or as animal feed that have a water activity greater than 0.95. Enumeration is by means of the colony count technique at $25 \pm 1^\circ\text{C}$, as described in ISO 21527-1:2008. DRBC Agar (ISO) is based on the formula described by King *et al.* and developed with reference to ISO 21527-1:2008 for the enumeration of yeasts and molds in food and animal products. The medium is used for the enumeration of viable yeasts and molds in products with a water activity of greater than 0.95 such as eggs, meat, some dairy products, fresh pastes, fruit and vegetables. DRBC Agar is designed to suppress the colonial growth of 'spreader' molds and in doing so allow easier performance of the colony count technique on yeasts and molds.

The use of the anti-fungal agent, Dichloran, restricts spreading of mucoraceous fungi and restricts the colony size of other genera. Rose Bengal also assists in the reduction of colony sizes and is selective against bacteria. Additional selectivity against bacterial growth is achieved through both the low pH of the medium and the incorporation of the heat-stable antibiotic Chloramphenicol. Glucose is incorporated as the fermentable carbohydrate source, an enzymatic digest of animal & plant tissues providing the essential vitamins, minerals, amino acids, nitrogen and carbon, and sodium chloride providing an osmotic balance. According to ISO 21527-1:2008 the test portion and the diluted test portion are inoculated onto DRBC Agar plates. This medium conforms to the performance and formulation requirements of ISO 21527-1:2008.

Typical Formulation

Enzymatic Digest of Animal & Plant Tissue	5.0 g/L
D-Glucose	10.0 g/L
Potassium Dihydrogen Phosphate	1.0 g/L
Magnesium Sulphate	0.5 g/L
Dichloran	0.002 g/L
Chloramphenicol	0.1 g/L
Rose Bengal	0.025 g/L
Agar	15.0 g/L

Final pH: 5.6 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precaution

Refer to SDS

Preparation

1. Suspend 31.7 grams of medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. Cool to $45\text{-}50^\circ\text{C}$.
5. Use immediately, or store in the dark according to ISO 11133 until required

Technical Specification Sheet



Test Procedure

For the enumeration of yeasts and molds- Refer to ISO 21527-1:2008

Quality Control Specifications

Dehydrated Appearance: Powder is homogenous, free flowing, and pink.

Prepared Appearance: Prepared medium is pink, clear to slightly hazy.

Expected Cultural Response: Cultural response at 25 ± 1°C after 5 days incubation.

Microorganism	Approx. Inoculum (CFU)	Expected Results
<i>Saccharomyces cerevisiae</i> WDCM 00058	50-200	≥50%*
<i>Aspergillus brasiliensis</i> WDCM 00053	50-200	≥50%*
<i>Candida albicans</i> WDCM 00054	50-200	≥50%*
<i>Mucor racemosus</i> WDCM 00181	50-200	≥50%*
<i>Escherichia coli</i> WDCM 00012	>10 ⁴	Total inhibition
<i>Escherichia coli</i> WDCM 00013	>10 ⁴	Total inhibition
<i>Bacillus subtilis</i> WDCM 00003	>10 ⁴	Total inhibition

* Characteristic colonies/propagules according to each species
The organisms listed are the minimum that should be used for quality control testing.

Results

Fermentation of the carbohydrate source glucose supports the growth of yeasts and molds. The anti-fungal agents Dichloran and Rose Bengal inhibit spreading molds and restrict colony size, to improve enumeration and detection.

Additional selectivity is achieved by the Chloramphenicol, which allows inhibition of bacterial growth.

Expiration

The dehydrated medium should be discarded if it is not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed

Limitations of the Procedures

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Storage

Store dehydrated culture media (NCM0082) at 2-30°C away from direct sunlight. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

References

1. ISO 21527-1:2008 Microbiology of food and animal feeding stuffs– Horizontal method for the enumeration of yeasts and moulds. Part 1: Colony count technique in products with water activity greater than 0.95.
2. King Jr, A.D., Hocking, A.D. and Pitt, J.I. (1979). Dichloran-Rose Bengal Medium for Enumeration and Isolation of Molds from Foods. *J. Appl. Environ. Microbiol.* 1979, 37, 959-964.
3. ISO 11133:2014+A1:2018 Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media.



620 Leshar Place • Lansing, MI 48912
800-234-5333 (USA/Canada) • 517-372-9200
foodsafety@neogen.com • foodsafety.neogen.com