DRCM Differential Reinforced Clostridial Medium (ISO)

SKU: 700004576, 700004577, 700004578, 700004579

NCM0183

Intended Use

Differential Reinforced Clostridial Medium ISO (DRCM) is a medium for the detection and enumeration of the spores of sulfite-reducing anaerobes as described in ISO 26461-1, and is not intended for use in the diagnosis of disease or other conditions in humans.

Description

Sulfite reducing anaerobes, in particular Clostridia, can be indicators of remote and intermittent pollution. Widespread in the environment, being found in human and animal feces, soil and waste water, the spores are more resistant to physical and chemical factors than vegetative cells and able to survive for long periods in water. The spores may also be resistant to chlorination at the levels commonly used in water treatment.

DRCM has been developed for use with the Most Probable Number (MPN) method to determine the MPN of anaerobes (Clostridia) per volume of sample. The formulation includes peptone, yeast extract, meat extract, starch & L-Cysteine for nutrition with glucose providing the energy source. Sodium acetate provides partial selectivity.

Clostridia are able to reduce sulfite to sulfide – forming iron sulfide. Iron (III) citrate is included in the formulation as an indicator of sulfite reduction. Blackening in the medium indicates that iron sulfide has been formed and therefore that sulfite reduction has occurred. Other bacteria are able to form sulfide, so vegetative cells must be first be removed from the test sample by an appropriate process e.g. heat treatment.

Typical Formulation

Peptone Tryptic Digest of meat	10.0 g/L
Meat Extract	10.0 g/L
Yeast Extract	1.5 g/L
Starch	1.0 g/L
Hydrated Sodium Acetate	5.0 g/L
Glucose	1.0 g/L
L-Cysteine Hydrochloride	0.5 g/L
Sodium Sulfite	0.4 g/L
Iron (III) Citrate	0.7 g/L

Final pH: 7.1 ± 0.2 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precaution

1. Refer to SDS

Preparation (single Strength medium)

1. Dissolve 30.1 grams of the medium in one liter of purified water.
2. Heat with frequent agitation to completely dissolve the medium, if necessary.
3. Dispense 25 mL aliquots of the medium into screw-capped bottles of capacity 25 mL
4. Autoclave at 121°C for 15 minutes.

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5. Medium should be used on day of preparation. If medium is stored, tubes should be reheated to deoxygenate the medium.
6. Tubes should not be reheated more than once.

For Double strength medium prepare as per single strength but reduce the volume of water by half.

Test Procedure

- For the method by enrichment in a liquid medium – Refer to ISO 26461-1:1993.

Quality Control Specifications

Dehydrated Appearance: Dehydrated powder is homogeneous, free flowing and beige.

Prepared Appearance: Finished medium is a clear pale yellow liquid

Results

Refer to appropriate references for results.

Expiration

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing or 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 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

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3. Gibbs, M.B. (1973). The detection of Clostridium welchii in the Differential Reinforced Clostridial Medium technique. *J. Appl. Bact.* 36. 23-33.
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