



# PRODUCT SPECIFICATION SHEET

## D.C.L.S. Agar (DM074)

### Intended Use

D.C.L.S. Agar (DM074) is recommended for selective detection and isolation of *Salmonella* and *Shigella* species. Also, useful for isolation of *Vibrio cholerae*.

### Product Summary and Explanation

*Salmonella* infection leads to *Salmonellosis*, one of the most important and most frequently reported human foodborne diseases worldwide.<sup>(1)</sup> It ranges clinically from self-limited gastroenteritis (diarrhea, abdominal cramps and fever) to enteric fevers (including typhoid fever). *Shigella* species are causative agents for classical bacillary dysentery characterized by severe cramping abdominal pain and diarrhea with blood and mucus. D.C.L.S. Agar is a modification of Deoxycholate Citrate Agar of Leifson.<sup>(2)</sup> It is a slightly selective and differential medium, for enterics in which the degree of inhibition is accurately controlled by the substitution of pure chemicals for the largely undefined composition of bile. This medium incorporates sucrose as an additional fermentable carbohydrate to differentiate lactose negative sucrose positive coliforms from *Salmonella* species.<sup>(3)</sup> The addition of sucrose to this medium increases its usefulness because non-pathogenic sucrose fermenting organisms like *Proteus*, *Enterobacter*, *Klebsiella* form red colonies. D.C.L.S. Agar is a moderately selective culture medium which also supports the growth of *Vibrio* species. In addition to the human pathogens, *S. pullorum* and *S. gallinarum* grow well.

### Principles of the Procedure

D.C.L.S. Agar contains proteose peptone and beef extract, which supply essential nutrients for the support of bacterial growth. Sodium citrate and sodium desoxycholate compounds serve as inhibitors of gram-positive bacteria and coliforms. The incorporation of two sugars permits the formation of red colonies by organisms that rapidly ferment either sucrose or lactose, or both; e.g., *Proteus vulgaris*, as well as typical coliforms. This permits the more accurate selection of members of the genera *Shigella* and *Salmonella*, which form colorless or nearly colorless colonies on DCLS Agar. Neutral red is the pH indicator.

### Formula / Liter

Ingredients	Gms / Liter
Proteose peptone	7.00
Beef extract	3.00
Lactose	5.00
Sucrose	5.00
Sodium citrate	10.00
Sodium thiosulphate	5.00
Sodium deoxycholate	2.50
Neutral red	0.03
Agar	12.00
Final pH: 7.2 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

### Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

### Directions

1. Suspend 49.53 grams of medium in one liter distilled water.
2. Heat to boiling to dissolve the medium completely.
3. DO NOT AUTOCLAVE.





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- Cool to 50°C and pour about 20 ml of medium into sterile Petri plates and allow to dry for about two hours with covers partially removed.

### Quality Control Specifications

<b>Dehydrated Appearance</b>	Light yellow to pink homogeneous free flowing powder
<b>Prepared Medium</b>	Reddish orange coloured, clear to slightly opalescent gel forms in Petri plates
<b>Reaction of 4.95% Solution</b>	pH : 7.2 ± 0.2 at 25°C
<b>Gel Strength</b>	Firm, comparable with 1.2% Agar gel.

**Expected Cultural Response:** Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Sr. No.	Organisms	Results to be achieved			
		Inoculum (CFU)	Growth	Recovery	Colour of colony
1.	<i>Enterococcus faecalis</i> ATCC 29212	>=10 <sup>3</sup>	inhibited	0%	--
2.	<i>Escherichia coli</i> ATCC 25922	50 - 100	none-poor	<=10%	red
3.	<i>Proteus vulgaris</i> ATCC 13315	50 - 100	good-luxuriant	>=50%	red
4.	<i>Salmonella Typhimurium</i> ATCC 14028	50 - 100	good-luxuriant	>=50%	colourless lightly pink
5.	<i>Shigella flexneri</i> ATCC 12022	50 - 100	fair-good	30-40%	colourless lightly pink

The organisms listed are the minimum that should be used for quality control testing.

### Test Procedure

- Inoculate and incubate plates, protected from light, at 35 -37°C for 18-24 hours. If negative after 24 hours, reincubate an additional 24 hours.
- A nonselective medium should also be streaked to increase the chance of recovery when the population of gram-negative organisms is low and to provide an indication of other organisms present in the specimen.

### Results

Typical colonial appearance on DCLS Agar is as follows:

- Escherichia coli* colonies are observed as large, flat, pink to red with a zone of precipitated bile salts.
- Enterobacter/Klebsiella* colonies are observed as large, mucoid, pink.
- Proteus* colonies are observed as colourless to red.
- Salmonella* and *Shigella* colonies are observed as colourless to lightly pink
- Pseudomonas* colonies are observed as colourless to brown or green.

### Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

### Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if 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 Procedure

- For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
- Consult appropriate texts for detailed information and recommended procedures.

### Packaging

**Product Name :** D.C.L.S. Agar

**Product Code :** DM074

**Available Pack sizes :** 100gm/ 500gm



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## References

1. Baird Parker. 1990. The Lancet. 336:1231.
2. Leifson. 1935. J. Pathol. Bacteriol. 40:581.
3. Hajna and Damon. 1956. Appl. Microbiol. 4:341.

## Further Information

For further information please contact your local MICROMASTER Representative.



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