

PRODUCT CODE: 416270

## XLD Agar (ISO 6579, ISO 19250, ISO 21567) (Dehydrated Culture Media) for microbiology

### Preparation

Suspend 54 grams of the medium in one litre of distilled water Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. AVOID OVERHEATING. DO NOT AUTOCLAVE. Cool to 45-50°C and pour into Petri dishes.as soon as it has cooled. The prepared medium should be stored at 8-15°C.

The colour is red-orange. The dehydrated medium should be homogeneous, free-flowing and pink in colour. If there are any physical changes, discard the medium.

### Uses

XLD AGAR (XYLOSE LYSINE DESOXYCHOLATE AGAR) is prepared according to formulation of the ISO 6579 norm. It is recommended for the identification of *Salmonella* in food products, after pre-enrichment in a non-selective fluid medium (Buffered Peptone Water) and enrichment in a selective fluid medium (Muller Kauffmann Broth Base with Brilliant Green & Novobiocine (MKTTN) and Rappaport Vassiliadis Soy Broth (RVS) or Modified Semisolid Rappaport Vassiliadis Medium (MRSV).

The reactions are the degradation of the three fermentable carbohydrates: xylose, lactose, and sucrose, with the production of acid, manifested in the colour change from red to yellow. Sodium thiosulfate serves as a reactive substance with Ferric ammonium citrate as an indicator of the formation of hydrogen sulphide under alkaline conditions. Lysine is included to enable the *Salmonella* group to be differentiated from the non-pathogens since, in its absence, *salmonellae* would quickly ferment the xylose, making it indistinguishable from non-pathogenic species.

After the *salmonellae* terminate the xylose present, the lysine is attacked through the enzyme lysine decarboxylase with a change to an alkaline pH, similar to the *Shigella* reaction. The bacteria that decarboxylate the L-Lysine to cadaverine are indentified by the presence of a purple red colour around the colonies due to the elevation of the pH. Phenol red is the pH indicator. Yeast extract is a source of vitamins, particularly of the B-group essential for bacterial growth. Sodium chloride supplies essential electrolytes for transport and osmotic balance. Sodium deoxycholate is the selective agent and is thus inhibitory to Gram-positive microorganisms. Bacteriological Agar is the solidifying agent.

According to ISO 6579, *Salmonella* H<sub>2</sub>S-negative variants grown in XLD agar are pink with a darker pink centre. Lactose positive *Salmonella* grown on XLD agar yellow with or without blackening.

### Composition

See in Data Sheet (TDS).

## Microbiological Test

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of  $37 \pm 1^\circ\text{C}$  and observed after  $24 \pm 3$  hours.

Microorganism	Growth	Colony Color
<i>Escherichia coli</i> ATCC 25922	Partially inhibited	Yellow (precipitate)
<i>Salmonella typhimurium</i> ATCC 14028	Good	Clear red (black center)
<i>Shigella flexneri</i> ATCC 12022	Good	Red
<i>Staphylococcus aureus</i> ATCC 25923	Inhibited	-

According ISO 19250 incubate at  $36 \pm 2^\circ\text{C}$  for  $24 \pm 3$  hours

According ISO 11133: ISO 6579:  $24 \pm 3$  h /  $37 \pm 1^\circ\text{C}$  // ISO 19250:  $24 \pm 3$  h /  $36 \pm 2^\circ\text{C}$ .

Microorganism	Colony Colour	Inoculum (cfu/ml)	Selectivity Qualitative	Productivity Qualitative
<i>Salmonella typhimurium</i> ATCC 14028	Colonies with black center and a lightly transparent reddish zone due to the colour change of the medium	$10^3 - 10^4$	-	Good growth
<i>Salmonella enteritidis</i> ATCC 13076	Colonies with black center and a lightly transparent reddish zone due to the colour change of the medium	$10^3 - 10^4$	-	Good growth
<i>Escherichia coli</i> ATCC 25922	Good	$10^4 - 10^6$	Partial inhibition	-
<i>Enterococcus faecalis</i> ATCC 29212	Inhibited	$10^4 - 10^6$	Total inhibition	-

## Storage

Once opened keep powdered medium closed to avoid hydration.

JM180914