Technical Data Sheet

ReadyPlate™ XLD (Xylose Lysine Deoxycholate) Agar acc ISO 6579

Ordering number: 1.46751.0020

For isolation and differentiation of *Salmonella* from food and animal feed, water and other materials.

General

This culture medium complies with the specifications given by EN ISO 6579, EN ISO/FDIS 6579-1, EN ISO 19250 and APHA.

Mode of Action

This medium relies on three indicator systems: degradation of xylose, lactose and sucrose to acid causes phenol red to change its color to yellow, lysine hydrochloride and also phenol red, sodium thiosulfate and iron.

Production of hydrogen sulfide is indicated by thiosulfate and iron(III) salt, which reacts to form a precipitate of black iron sulfide in the colonies. Bacteria which decarboxylate lysine to cadaverine can be recognized by the appearance of a purple coloration around the colonies due to an increase in pH. These reactions can proceed simultaneously or successively, this may cause the pH indicator to exhibit various shades of color or it may change its color from yellow to red on prolonged incubation.

The culture medium is moderately selective, thus the growth of unwanted organisms is suppressed, while sought bacteria can be tentatively grouped by reading the net effect of carbohydrate dissimilation, lysine decarboxylation and the formation of hydrogen sulfide leading to black colonies. Agar is the solidifying agent.

Typical Composition (g/l):

Specified by ISO 6579, ISO FDIS 6579, ISO 19250, APHA		ReadyPlate™ XLD Agar ISO 6579	
Yeast Extract	3.0	Yeast extract	3.0
Sodium chloride	5.0	Sodium chloride	5.0
Xylose	3.75	D(+)Xylose	3.75
Lactose	7.5	Lactose	7.5
Sucrose	7.5	Sucrose	7.5
L-Lysine hydrochloride	5.0	L(+)Lysine	5.0
Sodium thiosulfate	6.8	Sodium thiosulfate	6.8
Iron(III) ammonium citrate	0.8	Ammonium iron(III) citrate	0.8
Phenol Red	0.08	Phenol red	0.08
Sodium deoxycholate	1.0	Sodium deoxycholate	1.0
Agar	9 to 18	Agar-agar*	9 to 18
Water	1000 ml	Water	n/a
pH at 25 °C	7.4 ± 0.2	pH at 25 °C	7.4 ± 0.2

* Agar-agar is equivalent to other different terms of agar.

Application and Interpretation

Depend on the purpose for which the medium is used.
Following the procedure given by EN ISO 6579, inoculate the surface of the medium from the selective enriched cultures so that well-isolated colonies will be obtained.
Incubate the inoculated plates inverted under aerobic conditions, e.g. acc. to EN ISO 6579 at 37 ± 1 °C for 24 h ± 3 h.

Typical colonies of *Salmonella* on XLD agar acc. ISO 6579 have a black centre and a lightly transparent zone of reddish colour due to the colour change of the indicator.

Salmonella H_2S-negative variants grown on XLD agar acc. ISO 6579 are pink with a darker pink centre. Lactose-positive *Salmonella* grown on XLD agar acc. ISO 6579 are yellow with or without blackening.

A tentative grouping of isolates can be made from colonial appearance on XLD agar by discriminating roughly three groups of *Enterobactericeae*:

Colonies with red zones and black centre:	*Salmonella, Arizonae* and *Edwardsiella,*
Colonies with red zones and red centre:	*Shigella, Providencia* and hydrogen sulfide-negative *Salmonella*,
Colonies with yellow haloes and yellow centres:	the genera *Escherichia, Enterobacter, Citrobacter, Kluyvera, Klebsiella, Hafnia, Serratia* and *Proteus* and the species *Yersinia enterocolitica*

This presumptive evidence must be confirmed by carrying out the usual tests.

 Lit. No. TN1410EN00

Storage and Shelf Life

The product can be used for sampling until the expiry date if stored upright, protected from light and properly sealed at +15 °C to +25 °C.

The testing procedures as described on the CoA can be started up to the expiry date printed on the label.

Disposal

Please mind the respective regulations for the disposal of used culture medium (e.g. autoclave for 20 min at 121 °C, disinfect, incinerate etc.).

Quality Control

Function	Incubation	Control strains	Reference medium	Method of control	Criteria (% Recovery)	Characteristic reactions
Productivity	(24 ± 3) h at (37 ± 1)°C	*Salmonella* Typhimurium ATCC® 14028 (WDCM 00031)	Tryptic Soy Agar (TSA)	Quantitative	≥ 50%	Colonies with black centre and a lightly transparent zone of reddish colour due to the colour change of the medium
		Salmonella Enteritidis ATCC® 13076 (WDCM 00030)				
Selectivity	(24 ± 3) h at (37 ± 1)°C	*Escherichia coli* ATCC® 8739 (WDCM 0012)	-	Qualitative	Growth or partial inhibition	Yellow colonies
		Escherichia coli ATCC® 25922 (WDCM 00013)				
		Enterococcus faecalis ATCC® 19433 (WDCM 00009)		Qualitative	Total inhibition	-
		Enterococcus faecalis ATCC® 29212 (WDCM 00087)				

The performance test is in accordance with the current version of EN ISO 11133.

A recovery rate of 50 % is equivalent to a productivity value of 0.5.

Literature

ISO International Standardisation Organisation. Microbiology of food and animal feeding stuffs - Horizontal method for the detection of *Salmonella spp.* EN ISO 6579:2002.

ISO International Standardisation Organisation. Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* - Part 1: Horizontal method for the detection of *Salmonella spp.* EN ISO/FDIS 6579-1:2015.

ISO International Standardisation Organisation. Water quality - Detection of *Salmonella spp.* EN ISO 19250:2010.

ISO International Standardisation Organisation. Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media. EN ISO 11133:2014.

APHA (2015) Compendium of Methods for the Microbiological Examination of Foods. 5th ed. American Public Health Association, Washington, D.C.

Becker, H., Eberhardt, S. and Märtlbauer, E. 2003. Comparative studies on the detection of *Salmonellae* in milk and milk products using a horizontal (ISO 6579:2002) and a vertical (ISO 6785/IDF 93:2001) International Standard. - Arch. Lebensmittelhyg.. 54, 118-121.

Mooijman, K.A. 2012. Culture media for the isolation of *Salmonella*. In: Handbook of Culture Media for Food and Water Microbiology. (Corry, J.E.L., Curtis, G.D.W. and Baird, R.M. eds)., pp. 261 – 286. Royal Society of Chemistry, Cambridge, UK.

Ordering Information

Product	Cat. No.	Pack size	Other packaging sizes
ReadyPlate™ XLD Agar ISO 6579	1.46751.0020	20 x 90 mm	
Granucult™ XLD (Xylose Lysine Deoxycholate) agar acc. ISO 6579	1.05287.0500	500g	
ReadyTube™ 9 BPW ISO 6579,6887,21528	1.46142.0020	20 x 9ml	6 x 225ml, 6 x 1000ml,
GranuCult™ Buffered Peptone Water acc. ISO 6579, ISO 21528, ISO 22964, FDA-BAM and EP	1.07228.0500	500g	5Kg, 25Kg
Readybag® Buffered Peptone Water acc. ISO 6579, ISO 21528, ISO 22964, FDA-BAM and EP, 5,7 g, irradiated	1.02448.0001	60 bags	60 bags x 29g 35 bags x 86g
Granucult™ MKTTn (MULLER-KAUFFMANN Tetrathionate Novobiocin) broth (base) acc. ISO 6579	1.05878.0500	500g	
ReadyTube™10 RVS Broth ISO 6579	1.46694.0020	20x10ml	
GranuCult™ RVS (RAPPAPORT-VASSILIADIS-Soya) broth (base) acc. ISO 6579	1.07700.0500	500g	
Novobiocin sodium salt	N6160-1-G	1g	5g, 25g
ReadyTube™12 MSRV Medium ISO 6579	1.46694.0100	100x12ml	
MSRV (Modified Semi-solid RAPPAPORT-VASSILIADIS) medium (base) acc. ISO 6579	1.09878.0500	500g	
MSRV Selective Supplement	1.09874.0010	10x1 Vial	
RAMBACH® Agar ready-to-use	1.46719.0020	20 x 90mm	100 x 90mm
RAMBACH® Agar	1.07500.0001	4x250ml	4 x 1000ml, 4x50L
Singlepath® Salmonella	1.04140.0001	25 test	
Bismuth Sulfite Agar acc WILSON-BLAIR	1.05418.0500	500g	
Triple Sugar Iron Agar	1.03915.0500	500g	
Urea Agar (base) acc CHRISTIANSEN	1.08492.0500	500g	
Urea GR for analysis ACS, Reagent Ph Eur	1.08487.0500	500g	
MR-VP (Methyl Red-VOGES-PROSKAUER) Broth	1.05712.0500	500g	
KOVACS' indole reagent	1.09293.0100	100ml	

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 Lit. No. TN1410EN00