Technical Data Sheet

ReadyTube™ 200 VRBG (Violet Red Bile Glucose) Agar acc. ISO 21528

Ordering number: 1.46435.0006

VRBD (Violet Red Bile Dextrose) Agar is used for selective isolation of Enterobacteriaceae or bile tolerant gram-negative bacteria from non-sterile pharmaceutical products, foodstuffs and other sample material.

The formulation of the medium is prepared according to the recommendations of the current ISO 21528.

Mode of Action

Crystal violet and bile salts inhibit the accompanying bacterial flora. Degradation of glucose is accompanied by production of acid, which is indicated by a colour change to red and by zones of precipitated bile acids surrounding the colonies. All Enterobacteriaceae are detected as they all degrade glucose to acid. The culture medium is not, however, absolutely specific for these organisms as some other accompanying bacteria (e.g. Aeromonas) also show these reactions.

Typical Composition (g/l)

Specified by ISO 21528		ReadyTube™ 200 VRBG	
Enzymatic digest of animal tissues	7	Pancreatic digest of gelatin (Enzymatic digest of animal tissues)	7
Yeast extract	3	Yeast Extract	3
Bile Salts No. 3	1.5	Bile Salts	1.5
NaCl	5	NaCl	5.
Glucose	10	D(+)Glucose	10
Neutral red	0.03	Neutral red	0.03
Crystal violet	0.002	Crystal violet	0.002
Agar	9 to 18	Agar-agar	15
Water	1000	Water	1000
pH at 25°C	7.4±0.2	pH at 25°C	7.4±0.2

Application and Interpretation

The medium can be melted by placing in a boiling water bath as specified in ISO 11133. *Note: Avoid over heating the medium. Remove it from the water bath once melted.* Transfer the molten medium in a thermostatically controlled water bath. Maintain temperature from 47°C to 50°C. It is recommended to use the medium as soon as possible.

According to ISO 21528-1 for detection or enumeration of *Enterobacteriaceae* within foodstuff using the MPN method, the samples are diluted and enriched in Buffered Peptone Water. After incubation at 37 (or 30) °C, 18±2 h), each enrichment culture is streaked for isolation onto VRBG Agar and incubated aerobically for 24±2 hours at 37 (or 30) °C.

For colony count of *Enterobacteriaceae* in food according to ISO 21528-2 serial dilutions of the sample are prepared. 1 ml volumes of appropriate dilutions are plated by Pour Plate method. After solidification of the VRBG Agar a cover layer may be added. The plates are incubated for 24±2 hours at 37 (or 30)°C.

Enterobacteriaceae create characteristic pink or red colonies with or without precipitation zone. Some *Enterobacteriaceae* may grow to colorless or white colonies.

Suspect colonies (or a representative proportion thereof) may subjected to confirmatory tests.

The confirmation tests for suspect colonies are described within ISO 21528.

Storage and Shelf life

The product can be used for tests until the expiry date if stored upright, protected from light and properly sealed at +2 °C to +25 °C.

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

Condensation can be prevented by avoiding quick temperature shifts and mechanical stress.

Quality Control

Function	Incubation	Control strains	Reference medium	Method of control	Criteria (% Recovery)	Characteristic reactions
Productivity	37±1°C/ 24±2 h;	Escherichia coli ATCC 8739 (WDCM 0012)	Tryptic Soy Agar (TSA)	Quantitative	≥ 50	pink to red colonies with or without precipitation halo
		Escherichia coli ATCC 25922 (WDCM 00013)				
		Salmonella typhimurium ATCC 14028 (WDCM 00031)				
		Salmonella enteritidis ATCC 13076 (WDCM 00030)				
Selectivity	37±1°C/ 24±2 h	*Enterococcus faecalis* ATCC® 19433 (WDCM 00009)	Tryptic Soy Agar (TSA)	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.

Salmonella *Typhimurium* ATCC 14028

Escherichia *coli* ATCC 8739

Literature

ISO 21528-1:2004 / DIS:2014: Microbiology of food and animal feeding stuffs - Horizontal methods for the detection and enumeration of Enterobacteriaceae – Part 1: Detection and enumeration by MPN technique with pre-enrichment.

ISO 21528-2:2008 / DIS:2014: Microbiology of food and animal feeding stuffs - Horizontal methods for the detection and enumeration of Enterobacteriaceae – Part 2: Colony-count method.

ISO 11133:2014: Microbiology of food and animal feed and water – Preparation, production, storage and performance testing of culture media

ISO 7218 AMD 1: 2013: Microbiology of food and animal feeding stuffs — General requirements and guidance for microbiological examinations

Ordering Information

Product	Cat. No.	Pack size	Other packaging sizes
ReadyTube™200 VRBG Agar ISO 21528	1.46435.0006	6 x 200ml	
ReadyPlate™ VRBG Agar ISO 21528	1.46127.0020	20 x 90mm	100x90mm
Granucult™ VRBD Agar EP,USP,JP ISO 21528	1.10275.0500	500g	
Granucult™ EE Mossel Broth acc ISO 21528	1.05394.0500	500g	5Kg
ReadyTube™9 BPW ISO 6579,6887,21528	1.46142.0020	20 x 9ml	100 x 9ml, 6 x 225ml, 6 x 1000ml, 1 x 2000ml
Granucult™ BPW ISO 6579, ISO 21528, ISO 22964 FDA-BAM EP	1.07228.0500	500g	5Kg, 25Kg
Granucult™ Nutrient Agar ISO 6579, ISO 10273 ISO 21528	1.5450.0500	500g	
Bactident® Oxidase	1.13300.0001	50 strips	

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