

<b>B1485</b>	<b>MR-VP Medium (Glucose Phosphate Broth), Granulated</b>		
<b>Formula</b>			
<b>Ingredients: gms/lit.</b>			
<b>ISO 22964:2017(E), FDA BAM</b>	<b>MR-VP Medium (Glucose Phosphate Broth), Granulated B1485</b>		
<b>Ingredients</b>	<b>g / L</b>	<b>Ingredients</b>	<b>g / L</b>
Enzymatic digest of animal tissues	7.00	Peptone	7.00
D-Glucose	5.00	Dextrose	5.00
Potassium phosphate dibasic(K <sub>2</sub> HPO <sub>4</sub> )	5.00	Dipotassium phosphate	5.00
pH after sterilization at 25°C	6.9±0.2	Final pH ( at 25°C)	6.9±0.2
Final pH (at 25°C): 6.9 ± 0.2			
<b>Directions:</b>			
Suspend 17.0 grams in 1000 ml of distilled water. Heat if necessary to dissolve the medium completely. Distribute in test tubes in 10 ml amounts and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.			
<b>Principle:</b>			
MR–VP Medium contains peptone as a carbon and nitrogen source for general growth requirements. Dextrose is a fermentable carbohydrate. All members of Enterobacteriaceae are, by definition, glucose fermenters. In MR-VP Broth, after 18-24 hours of incubation, fermentation produces acidic metabolic byproducts Members of the Enterobacteriaceae convert dextrose to pyruvate by the Embden – Meyerhof pathway. Some bacteria metabolize pyruvate by the mixed acid pathway and produce acidic end products (pH < 4.4), such as lactic, acetic and formic acids. Other bacteria metabolize pyruvate by the butylenes glycol pathway and produce neutral end products (pH > 6.0), one of which is acetoin (acetylmethylcarbinol). In the MR test, the pH indicator methyl red detects acidic end products. In the VP test, acetoin is oxidized in the presence of oxygen and potassium hydroxide (KOH) to diacetyl, which produces a red colour.			
<b>QC Tests – (I)Dehydrated Medium</b>			
Colour:	Cream to yellow		
Appearance:	Homogeneous Free Flowing powder		
<b>(II)Rehydrated medium</b>			
pH (post autoclaving/heating):	6.9 ± 0.2		
Colour (post autoclaving/heating):	Light yellow		
Clarity (post autoclaving/heating):	Clear solution without any precipitate		
<b>(III) Q.C. Test Microbiological</b>			
Cultural characteristics observed after 18-48 hours at 30-32°C.			
MICROORGANISM (ATCC)	GROWTH	MR TEST	VP TEST
Enterobacter aerogenes (13048)	Luxuriant	Negative reaction	Positive reaction, bright red colour
Cronobacter sakazakii ATCC 29544	Luxuriant	Negative reaction	Positive reaction, bright red colour
Cronobacter muytjensii ATCC 51329	Luxuriant	Negative reaction	Positive reaction, bright red colour
Enterobacter cloaccae ATCC 13047	Luxuriant	Negative reaction	Positive reaction, bright red colour
Salmonella Enteritidis ATCC 13076	Luxuriant	Positive reaction, bright red colour	Negative reaction
Escherichia coli (25922)	Luxuriant	Positive reaction, bright red colour	Negative reaction
Salmonella Typhimurium ATCC 14028	Luxuriant	Positive reaction, bright red colour	Negative reaction

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	Klebsiella pneumoniae ATCC 13883	Luxuriant	Negative reaction	Positive reaction, bright red colour	
<b>Precautions :</b>	1. For Laboratory Use. 2. Follow proper, established laboratory procedures in handling and disposing of infectious materials.				
<b>Limitations :</b>	1. Since the nutritional requirements of organisms vary, some strains may be encountered that fail to grow or grow poorly on this medium. 2. Results of the MR and VP tests need to be used in conjunction with other biochemical tests of differentiate genus and species within the Enterobacteriaceae. 3. A precipitate may form in the potassium hydroxide reagent solution. This precipitate has not been shown to reduce the effectiveness of the reagent. 4. Most members of the family Enterobacteriaceae give either a positive MR test or a positive VP test. However, certain organisms such as Hafnia alvei and Proteus mirabilis may give a positive result for both tests. 5. Incubation time for the Methyl Red test cannot be shortened by increasing the glucose concentration in the medium or by heavily inoculating the broth. 6. Incubate MR – negative tests for more than 48 hours and test again. 7. Read the VP test at 48 hours. Increased incubation may produce acid conditions in the broth that will interfere with reading the results. 8. VP reagents must be added in the order and the amounts specified or a week – positive or false – negative reaction may occur. A weak – positive reaction may be masked by a copper – like colour which may form due to the reaction of KOH and $\alpha$ – naphthol. 9. Read the VP test within 1 hour of adding the reagents. The KOH and $\alpha$ – naphthol may react to form a copper – like colour, causing a potential false – positive interpretation. 10. Due to the possible presence of acetoin, diacetyl or related substances in certain raw materials, the use of media low in these substances (such as MR-VP Medium) is recommended for this test.				
<b>Use:</b>	MR-VP Medium (Glucose Phosphate Broth) is recommended for the performance of the Methyl Red and Voges-Proskauer tests in differentiation of the coli-aerogenes group, Cronobacter spp. This composition is as per the specifications laid down in ISO 22964:2017(E), FDA BAM.				
<b>Storage:</b>	Dehydrated medium- below 30 ° C Prepared mediums– Between 2 to 8°C.				
<b>Packing:</b>	500 gm. bottle				
<b>Product profile:</b>	Reconstitution	Quantity on Preparation (500g)	pH (25°C)	Supplement	Sterilization
<b>B1485</b>	17g/l	29.411L	6.9 ± 0.2	NIL	121 <sup>0</sup> C / 15 minutes

**Disclaimer:**

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related BIOMARKLABORATORIES publications.

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