

TM 2136 - IUT MEDIUM BASE

INTENDED USE

For cultivation of *Mycobacterium tuberculosis*.

PRODUCT SUMMARY AND EXPLANATION

Mycobacterium genus belongs to the family *Mycobacteriaceae*. They are aerobic, non-motile, gram-positive and characteristically acid-alcohol fast bacilli. It grows at temperatures from 30-41°C, optimally at 35-37°C. Although primary isolation may be successful on a variety of media, only Lowenstein Jensen Medium with glycerol i.e. IUT Medium with glycerol has been recommended. This medium is recommended by the International Union against Tuberculosis for the Diagnosis of Mycobacterial Infections. It is also commonly known as Lowenstein-Jensen Glycerol Medium. It differs from Lowenstein-Jensen Medium since it does not contain potato flour/starch. This medium has been reported to provide higher proportion of tests positives.

COMPOSITION

Ingredients	Gms / Ltr
L-Asparagine	3.600
Potassium dihydrogen phosphate	2.460
Magnesium sulphate	0.240
Magnesium citrate	0.600
Malachite green	0.400

PRINCIPLE

The medium supports rapid and luxuriant growth of primary cultures. The addition of glycerol to the medium improves the growth of *M. tuberculosis*. Malachite green has an inhibitory effect on the growth of organisms other than Mycobacteria and provides a colour contrast that facilitates the recognition of colonies, which, especially when small, would be difficult to see without the dye. The medium is recommended for the isolation of human type of tubercle bacillus, whose growth is enhanced by glycerol. Colonial morphology allows the differentiation of the human and bovine types of bacillus, but the bovine bacilli may be inhibited by glycerol and so may fail to grow on this medium. L-Asparagine serves as a source of nitrogen for the cultivation of tubercle bacilli. Inorganic salts provide necessary ions for the metabolism of Mycobacteria.

INSTRUCTION FOR USE

- Dissolve 7.3 grams in 600 ml purified / distilled water containing 12 ml glycerol.
- Heat if necessary to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Cool to 45-50°C and aseptically add 1 litre of sterile whole egg emulsion, prepared under aseptic conditions.
- Mix well avoiding the formation of air bubbles and dispense in screw-capped containers. Sterilize by inspissation at 85°C for 1 hour.

QUALITY CONTROL SPECIFICATIONS



Appearance of Powder : Greenish blue to peacock blue homogeneous free flowing powder

Appearance of prepared medium : Basal medium yields bluish green colour, when basal medium (7.3gm in 600ml distilled water) is mixed with 1000ml whole egg emulsion and insisted, it coagulates to yield pale blue coloured opaque smooth slants.

pH (at 25°C) : 7.0±0.2

INTERPRETATION

Cultural characteristics observed in presence of 5-10% Carbon dioxide (CO₂) with added whole egg emulsion after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Incubation Temperature	Incubation Period
<i>Mycobacterium smegmatis</i>	14468	50-100	Luxuriant	35-37°C	2-4 weeks
<i>Mycobacterium tuberculosis</i>	25618	50-100	Luxuriant	35-37°C	2-4 weeks

PACKAGING:

In pack size of 100 gm and 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

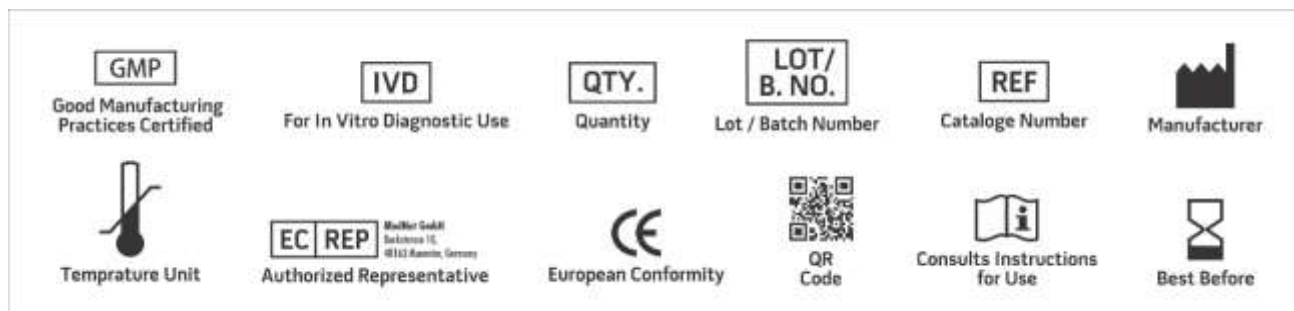
DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

1. Cruickshank R., Duguid J. P., Marmion, B. P., Swain, R. H. A., (Eds.), 1975, Mackie and McCartney Practical Medical Microbiology, Vol. 2, 12 th Edition, Edinburgh, Churchill Livingstone.
2. International Tuberculosis Year Book, 1955, Bulletin of the International Union against Tuberculosis, pg. 89.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock, D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. La Placa, Bubani and Raspi., 1956, Riv. Patol. Clin. Tuberc., 29:133.





NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**
Revision: 08 Nov., 2019