

Technical data supporting preparation, quality control, and application of this product.

Formula (per litre)

Ingredient	Amount
Sodium caseinate	2.0 g
L-Asparagine	0.1 g
Sodium propionate	4.0 g
Dipotassium phosphate (K_2HPO_4)	0.5 g
Magnesium sulfate ($MgSO_4 \cdot 7H_2O$)	0.1 g
Ferrous sulfate ($FeSO_4 \cdot 7H_2O$)	0.001 g
Agar	15.0 g
Glycerol (added separately)	5.0 mL

Mode of Action

Sodium propionate selectively suppresses many rapidly growing bacteria and fungi, allowing slower-growing actinomycetes to establish colonies. Glycerol supplies the carbon source that drives characteristic mycelial growth and sporulation, while dipotassium phosphate buffers the medium to maintain the alkaline pH that favours actinomycete recovery.

Preparation

1. Suspend 21.7 g of powder in 1 litre of purified/distilled water.
2. Add 5.0 mL of glycerol.
3. Mix thoroughly and heat with agitation to boiling to dissolve the medium completely.
4. Sterilise by autoclaving at 121 °C for 15 minutes.
5. Cool to 45–50 °C, mix gently, and dispense into sterile plates or tubes as required.

Directions for Use

Inoculate the surface of the poured plate with 0.1 mL of diluted soil suspension or sample, spreading with a sterile bent glass rod. Incubate at 25–30 °C for 7–21 days, examining periodically for the appearance of small, dry, powdery colonies typical of actinomycetes. Prolonged incubation is often required as actinomycete colonies develop more slowly than typical bacteria.

Quality Control Specifications

Parameter	Specification	Method
Appearance (powder)	Homogeneous; cream to light beige; free-flowing	Visual inspection
pH (prepared, 25 °C)	8.1 ± 0.2	Potentiometry (ISO 10523)
Loss on Drying	≤ 6.0% w/w	105 °C / 2 h (gravimetric)
Gel strength	Firm gel, suitable for pouring	Visual / textural assessment
Growth — <i>Streptomyces griseus</i> ATCC 10137	Good growth; typical dry powdery colonies with aerial mycelium (≤ 100 CFU inoculum)	Growth promotion test
Inhibition — <i>Escherichia coli</i> ATCC 25922	Partial to complete inhibition (≤ 100 CFU inoculum)	Selectivity test
Inhibition — <i>Bacillus subtilis</i> ATCC 6633	Partial inhibition; reduced/no growth vs. non-selective media (≤ 100 CFU inoculum)	Selectivity test
Sterility (prepared medium)	No growth at 14 days, 30–35 °C	Incubation sterility check

Literature / References

Original Formulation	Olson, B.H. (1967). Enumeration of Actinomycetes. Applied Microbiology, 15(4), 809–813.
Standard Reference	Waksman, S.A. (1961). The Actinomycetes: Classification, Identification and Description of Genera and Species. Williams & Wilkins.
ISP Method	Shirling, E.B. & Gottlieb, D. (1966). Methods for characterization of <i>Streptomyces</i> species. International Journal of Systematic Bacteriology, 16(3), 313–340.
Applied Reference	Atlas, R.M. (2010). Handbook of Microbiological Media, 4th Edition. CRC Press.

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