Product Name: D-Cycloserine
Product Number: C041
CAS Number: 68-41-7
Molecular Formula: C₃H₆N₂O₂
Molecular Weight: 102.09
Form: Powder
Appearance: White to pale white crystalline powder
Solubility: Appearance of solution: colorless, clear
Source: Synthetic
pH: 5.5-6.5
Optical Rotation: +108° to +114°
Storage Conditions: -20°C
Description: D-cycloserine is an amino acid analog antibiotic. D-cycloserine acts as a competitive inhibitor of D-alanine, an essential amino acid during peptidoglycan synthesis. D-cycloserine is soluble in aqueous solution.
Mechanism of Action: D-Cycloserine inhibits cell wall biosynthesis (D-Ala peptide bond formation). The terminal two amino acid residues of the murein precursor lipid II consist of D-alanine, which is produced by the enzyme alanine racemase; the two residues are joined by D-alanine ligase. Both enzymes are competitively inhibited by cycloserine.
Spectrum: D-cycloserine broad spectrum antibiotic but is largely used against bacteria which cause tuberculosis namely Mycobacterium tuberculosis.
Microbiology Applications: D-cycloserine can be used as a selective agent in several types of isolation media:
- *Perfringens Agar* - SFP and TSC selective supplements
- *Clostridium difficile agar* - Isolation of Clostridium difficile
- m-CP Medium - Membrane C. perfringens Selective Supplement