Product Name: Thiamphenicol

Product Number: T005

CAS Number: 15318-45-3

Molecular Formula: $C_{12}H_{15}Cl_2NO_5S$

Molecular Weight: 356.22 g/mol

Form: Powder

Appearance: Off-white powder

Solubility:
- Acetonitrile: Soluble
- Alcohol: Soluble
- Dimethylacetamide: Soluble
- Dimethylformamide: Soluble
- Water: Slightly soluble

Source: Synthetic

Absorbance: UV max (95% ethanol): 224, 266, 274 nm ($\epsilon$ 13,700, 800, 700).

Melting Point: 164.3-166.3 °C

Storage Conditions: 2-8 °C, protect from light

Description: Thiamphenicol is a bacteriostatic antibiotic derived from chloramphenicol. Like chloramphenicol, thiamphenicol is insoluble in water but highly soluble in lipids.

Mechanism of Action: Both thiamphenicol and chloramphenicol work by the same mechanism, however, thiamphenicol is about 3X as potent. After entering a bacterial cell, thiamphenicol binds to the 50S ribosomal subunit preventing peptide bond formation. Resistance to thiamphenicol may be due to decreased cell permeability or a mutation in the 50S ribosomal subunit.

Spectrum: Thiamphenicol is a broad spectrum antibiotic commonly used to target bacteria responsible for causing sexually transmitted diseases.

Microbiology Applications: Thiamphenicol is commonly used in clinical in vitro microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against gram positive and gram negative microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options for infected patients. Representative MIC values include:

- *Neisseria gonorrhoeae* 0.125 µg/mL – 4 µg/mL
In a study by Meynier et al. (1989), thiamphenicol was used for hygienic purposes in hybrid walnut propagation. In addition to other antibiotics used during the study, thiamphenicol was found to be effective against several gram negative pathogenic bacteria.

References:

