

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 (ϵ 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 <i>in vitro</i> 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

Plant Biology Applications

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:

Duck, P. D., and J. R. Dillon. "Effects of Thiamphenicol and Chloramphenicol in Inhibiting Neisseria Gonorrhoeae Isolates." *Antimicrobial Agents and Chemotherapy* 14.5 (1978): 788-90. www.ncbi.gov. 26 July 1978. Web. 21 Aug. 2012.

Mayer, Gene, Dr. "Antibiotics - Protein Synthesis, Nucleic Acid Synthesis, and Metabolism." University of South Carolina School of Medicine. Web. 21 Aug. 2012.

Meynier V. and Arnould M.F., 1989, Compared Effectiveness of Antibiotic Treatments and Shoot Tip Culture on Bacterial Decontamination of an *in vitro* Propagated Clone of Hybrid Walnut (*Juglans nigra* x *J. regia*). *Biologia Plantarum (PRAHA)* 31 (4): 269-275. 1989

If you need any help, contact us: info@toku-e.com. Find more information on: www.toku-e.com/