

Product Name:	Chlortetracycline HCl, EP
Product Number:	C029
CAS Number:	64-72-2
Molecular Formula:	$C_{22}H_{23}ClN_2O_8 \cdot HCl$
Molecular Weight:	515.34 g/mol
Form:	Powder
Appearance:	Yellow powder
Source:	<i>Streptomyces aureofaciens</i> .
Water Content (Karl Fischer):	≤2.0%
Absorbance:	$A_{460} \leq 0.400$
pH:	2.3-3.3
Optical Rotation:	-235° to -250°
Description:	<p>Chlorotetracycline HCl, EP is tetracycline antibiotic and the first antibiotic of the tetracycline class to be discovered. Chlorotetracycline HCl is soluble at 8.6 mg/mL.</p> <p>Chlortetracycline HCl, EP meets European Pharmacopoeia (EP) specifications.</p>
Mechanism of Action:	The mechanism of chlorotetracycline involves entering a cell and binding to the 30s ribosomal subunit preventing peptide elongation and ultimately inhibiting protein synthesis. Resistance to chlorotetracycline can be a result of inactivation by cell enzymes or pumping the antibiotic out of the cell upon entering.
Spectrum:	Chlorotetracycline is a broad spectrum antibiotic targeting a wide variety of gram positive and gram negative bacterial cells.
Microbiology Applications	<p>Chlorotetracycline HCl 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:</p> <ul style="list-style-type: none"> • <i>Micrococcus</i> 17 µg/mL • For a complete list of chlorotetracycline MIC values, click here.

Plant Biology Applications

Chlortetracycline, in combination with colistin and gentamicin have been successfully used in sweet cherry (*Prunus avium* L). tissue culture to eliminate *Pseudomonas* spp. contaminants.

References:

Hierowski, Marian. "Inhibition of Chlortetracycline Protein Synthesis in the E. coli *In Vitro* System.." PNAS 53.3 (1965): 594-99. www.ncbi.gov. Web. 10 Sept. 2012.

Leifert C., Ritchie J.Y. and Waites W.M., Contaminants of plant-tissue and cell cultures. World Journal of Microbiology and Biotechnology 7. 452469.

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