



Chlortetracycline Hydrochloride PRODUCT DATA SHEET

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Product Name:	Chlortetracycline Hydrochloride
Product Number:	C072
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> .
Potency (on a dry basis):	≥ 900 µg/mg
pH:	2.3-3.3
Optical Rotation:	-235° to -250°
Storage Conditions:	-20 °C, protected from light.
Description:	Chlortetracycline hydrochloride (HCl) is tetracycline antibiotic and the first antibiotic of the tetracycline class to be discovered. Chlortetracycline HCl is soluble in water at 8.6 mg/mL.
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 chlortetracycline can be a result of inactivation by cell enzymes or pumping the antibiotic out of the cell upon entering.
Spectrum:	Chlortetracycline is a broad spectrum antibiotic targeting a wide variety of gram positive and gram negative bacterial cells.
Microbiology Applications	Chlortetracycline 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: <ul style="list-style-type: none">• <i>Micrococcus</i> 17 µg/mL• For a complete list of chlortetracycline MIC values, click here.
Plant Biology Applications	Chlortetracycline, in combination with colistin and gentamicin have been successfully used in sweet cherry (<i>Prunus avium</i> L). tissue culture to eliminate <i>Pseudomonas</i> 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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