

Product Name:	Cefaclor, USP
Product Number:	C005
CAS Number:	70356-03-5
Molecular Formula:	$C_{15}H_{14}ClN_3O_4S \cdot H_2O$
Molecular Weight:	385.82
Form:	Powder
Appearance:	White or off-white powder
Solubility:	slightly soluble in aqueous solution (8.6mg/mL).
Source:	Semi-synthetic
Water Content (Karl Fischer):	3.0-6.5%
pH:	3.0-4.5
Storage Conditions:	-20°C
Description:	Cefaclor is a second generation cephalosporin antibiotic derived from the <i>Acremonium</i> fungus. Cefaclor is slightly soluble in aqueous solution (8.6mg/mL).
Mechanism of Action:	Like β -lactams, cephalosporins interfere with PBP (penicillin binding protein) activity involved in the final phase of peptidoglycan synthesis. PBP's are enzymes which catalyze a pentaglycine crosslink between alanine and lysine residues providing additional strength to the cell wall. Without a pentaglycine crosslink, the integrity of the cell wall is severely compromised and ultimately leads to cell lysis and death. Resistance to cephalosporins is commonly due to cells containing plasmid encoded β -lactamases.
Spectrum:	Cefaclor is a broad spectrum antibiotic against Gram-negative and Gram-positive bacteria, including those that cause pneumonia and meningitis such as <i>Streptococcus pneumoniae</i> and <i>Haemophilus influenzae</i>
Microbiology Applications	<p>Cefaclor 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:</p> <ul style="list-style-type: none"> • <i>Streptococcus pneumoniae</i> 0.25 μg/mL - >64 μg/mL • <i>Haemophilus influenzae</i> 0.25 μg/mL - >32 μg/mL • For a complete list of cefaclor MIC values, click here.

References:

Georgopapadakou, NH (1992) Mechanisms of Action of Cephalosporin 3'-quinolone Esters, Carbamates, and Tertiary Amines in *Escherichia Coli*. 37(3):559-565. Antimicrob. Agents and Chemother. 37(3):559-565

Li M et al (2006) Interactions of amoxicillin and cefaclor with human renal organic anion and peptide transporters. Drug. Metab. Dispos.34(4):547-555. PMID 16434549

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