

Product Name:	Cloxacillin Sodium
Product Number:	C038
CAS Number:	7081-44-9
Molecular Formula:	$C_{19}H_{17}ClN_3NaO_5S \cdot H_2O$
Molecular Weight:	475.88 g/mol
Form:	Powder
Appearance:	White or almost white powder
Source:	Bacillus polymyxa
pH:	4.0-7.0
Storage Conditions:	2-8 °C
Description:	Cloxacillin sodium is a narrow-spectrum β -lactam antibiotic of the penicillin class. Cloxacillin sodium is sparingly soluble in aqueous solution (0.014 mg/mL).
Mechanism of Action:	β -lactams 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 β -lactams is commonly due to cells containing plasmid encoded β -lactamases. Unlike other members of the penicillin class, cloxacillin is resistant to β -lactamases.
Spectrum:	Cloxacillin targets primarily gram positive bacteria, especially β -lactamase producing <i>Staphylococci</i> .
Microbiology Applications	<p>Cloxacillin is commonly used in clinical <i>in vitro</i> microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against gram positive microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options for infected patients. Representative MIC values include:</p> <p><i>Staphylococcus aureus</i> 0.2 μg/mL – 3.13 μg/mL</p> <ul style="list-style-type: none">• For a complete list of cloxicillin MIC values, click here.
References:	<p>Guzmán, Flavio, MD. "Beta Lactams Antibiotics (penicillins and Cephalosporins) Mechanism of Action." <i>Medical Pharmacology</i>. Pharmacology Corner, 29 Nov. 2008. Web. 21 Aug. 2012.</p> <p>Pitout JD, Sanders CC, Sanders WE Jr. Antimicrobial resistance with focus on beta-lactam resistance in gram-negative bacilli. <i>Am J Med</i> 1997; 103:51.</p>

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