

<b>Product Name:</b>	Ceftizoxime Sodium
<b>Product Number:</b>	C021
<b>CAS Number:</b>	68401-82-1
<b>Molecular Formula:</b>	$C_{13}H_{12}N_5O_5S_2 \cdot Na$
<b>Molecular Weight:</b>	405.38
<b>Form:</b>	Powder
<b>Appearance:</b>	White or pale yellow crystalline powder
<b>Solubility:</b>	soluble in aqueous solution
<b>Source:</b>	Synthetic
<b>Water Content (Karl Fischer):</b>	≤8.5%
<b>pH:</b>	6.0-8.0
<b>Optical Rotation:</b>	+125° to +145°
<b>Storage Conditions:</b>	-20°C
<b>Description:</b>	Ceftizoxime sodium is a third-generation cephalosporin, similar in antibacterial activity to cefotaxime and moxalactam. It is not hydrolyzed by common plasmid and chromosomal $\beta$ lactamases. It is soluble in aqueous solution.
<b>Mechanism of Action:</b>	Like $\beta$ -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 $\beta$ -lactamases; however, ceftizoxime is stable in the presence of these inactivating enzymes.
<b>Spectrum:</b>	Ceftizoxime is a broad spectrum antibiotic targeting a wide variety of Gram-positive and Gram-negative bacteria, both aerobic and anaerobic.
<b>Microbiology Applications</b>	<p>Ceftizoxime sodium 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"> <li>• <i>Haemophilus spp.</i> 0.008 µg/mL – 0.25 µg/mL</li> <li>• <i>Neisseria spp.</i> 0.004 µg/mL – 0.015 µg/mL</li> <li>• For a complete list of ceftizoxime MIC values, <a href="#">click here</a>.</li> </ul>

**References:**

Fass RJ (1983) Comparative *in vitro* activities of third-generation cephalosporins. Arch Intern Med. 143(9):1743–1745 PMID 6615095

Kamimura T, Matsumoto Y, Shigi Y, Nishida M. (1980) Laboratory evaluation of ceftizoxime, a new parenteral cephalosporin. Arzneimittelforschung. 30(10):1662-1664 PMID 6969078

Leyhausen G, Seibert G, Maidhof A and Muller WEG (1984) Differential stimulation of lymphocyte cell growth *in vitro* by cephalosporins. Antimicrob. Agents Chemother. 26(5):752-756 PMID 6517558

Neu, HC (1984) Ceftizoxime: A Beta-Lactamase-Stable, Broad-Spectrum Cephalosporin. J. Human Pharmacol and Drug Ther. 4:47-58

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