Cefuroxime Sodium
PRODUCT DATA SHEET

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Product Name:	Cefuroxime Sodium
Product Number:	C023
CAS Number:	56238-63-2
Molecular Formula:	$C_{16}H_{15}N_4NaO_8S$
Molecular Weight:	446.37 g/mol
Form:	Powder
Appearance:	White to yellowish crystalline powder
Source:	Synthetic
Water Content (Karl Fischer):	≤3.5%
pH:	6.0-8.5
Optical Rotation:	+55° to +65º
Storage Conditions:	-20°C
Description:	Cefuroxime Sodium is a broad-spectrum, semi-synthetic second-generation cephalosporin antibiotic with increased stability to beta-lactamases. It is bactericidal against Gram-negative and Gram-positive bacteria. Cefuroxime sodium is freely soluble in aqueous solution (0.145 mg/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. Like many second generation cephalosporins, Cefuroxime is relatively stable in the presence of β-lactamases.
Spectrum:	Cefuroxime sodium is a broad-spectrum antibiotic targeting a wide variety of Gram-negative and Gram-positive bacteria.

Microbiology Applications Cefuroxime sodium 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:

- *Haemophilus influenzae* 0.25 µg/mL – 4 µg/mL
- *Neisseria gonorrhoeae* 0.2 µg/mL – 1.6 µg/mL
- For a complete list of Cefuroxime MIC values, click here.

References:

Georgopapadakou, NH (1992) Mechanisms of action of cephalosporin 3'-quinolone esters, carbamates, and tertiary amines in *Escherichia coli.* Antimicrob. Agents Chemother. 37(3): 559-565.

O'Callaghan CH, Sykes RB, Griffiths A, Thornton JE (1976) Cefuroxime, a new cephalosporin antibiotic: Activity *in vitro*. Antimicrob. Agents Chemother. 9(3):511-519. PMID 1259407

Salzmann GM (2007) Effects of cefuroxime on human osteoblasts *in vitro.* J. Biomed. Mat. Res. 82A(2):462-468

Temel Y, Ayna A, Shafeeq IH and Ciftci M (2018) *In vitro* effects of some antibiotics on glucose-6-phosphate dehydrogenase from rat (*Rattus norvegicus*) erythrocyte. Drug Chem. Toxicol. ePub. doi: 10.1080/01480545 PMID 29947262