

Product Name:	Cefpirome Sulfate solubilized
Product Number:	C055
CAS Number:	98753-19-6 (Cefpirome Sulfate)
Molecular Formula:	$C_{22}H_{22}N_6O_5S_2 \cdot H_2SO_4$ (Cefpirome Sulfate)
Molecular Weight:	612.66 (Cefpirome Sulfate)
Form:	Powder
Appearance:	White or slightly yellow crystalline powder
Solubility:	soluble in water
Source:	Mixture
pH:	5.5-7.5
Storage Conditions:	-20°C
Description:	<p>Cefpirome Sulfate solubilized is a mixture of Cefpirome Sulfate with anhydrous sodium carbonate that is used to stabilize the pH in aqueous solution. Cefpirome Sulfate is commonly susceptible to degradation in aqueous solutions at pH range of 0.44 – 13 and this hydrolysis is a first-order reaction, with best stability at pH 4-6. The addition of anhydrous sodium carbonate stabilizes the pH to slow the degradation in aqueous solutions. Cefpirome Sulfate is a semisynthetic, broad-spectrum, fourth generation cephalosporin antibiotic that inhibits bacterial cell wall synthesis, and is resistant to β - lactamases. Cefpirome Sulfate solubilized is soluble in water.</p>

We also offer:

- Cefpirome Sulfate ([C014](#))

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.

The relative lack of cross-resistance between Cefpirome and the third-generation cephalosporins suggests a slightly different mechanism of action of Cefpirome in comparison to the other cephalosporins.

Due to its compact dipolar structure, Cefpirome can penetrate Gram-negative bacteria more quickly than the other agents (Nikaido et al, 1990).

Spectrum: Cefpirome is a broad-spectrum antibiotic targeting a wide variety of Gram-positive and Gram-negative bacteria. Many *Bacteroides*, *Enterococci*, and *Haemophilus* species have developed resistance to Cefpirome.

Microbiology Applications Cefpirome Sulfate solubilized 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 . Representative effective ranges include:

- *Campylobacter jejuni* 0.5 µg/mL – 8 µg/mL
- *Klebsiella pneumoniae* 0.032 µg/mL – 0.125 µg/mL
- *Pseudomonas aeruginosa* 2 µg/mL – 32 µg/mL
- For a representative list of Cefpirome MIC values, [click here](#).

Cancer Applications Cefpirome was found to be more effective than ceftazidime, aztreonam, timentin, and piperacillin against nosocomially important isolates from cancer patients during *in vitro* examination of 253 bacterial isolates (Rolston et al, 1986).

References: Hafeez S, Izhar M, Ahmed A, Zafar A, and Naeem M (2000) *In vitro* antimicrobial activity of Cefpirome: a new fourth-generation cephalosporin against clinically significant bacteria. J. Pak. Med. Assoc. 50(8):250-252 PMID 10992706

Kobayashi S, Arai S, Hayashi S and Fujimoto K (1986) β-Lactamase Stability of Cefpirome (HR 810), a new cephalosporin with a broad antimicrobial spectrum. Antimicrob. Agents Chemother. 30(5):713-718 PMID 3492175

Nikaido H, Liu W and Rosenberg EY (1990) Outer membrane permeability and beta-lactamase stability of dipolar ionic cephalosporins containing methoxyimino substituents. Antimicrob. Agents Chemother. 34(2):337-342 PMID 2109581

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