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| Product Name: | Cefotetan |
| Product Number: | C012 |
| CAS Number: | 69712-56-7 |
| Molecular Formula: | $C_{17}H_{17}N_7O_8S_4$ |
| Molecular Weight: | 575.62 |
| Form: | Powder |
| Appearance: | White or light-yellow powder |
| Source: | Semi-synthetic |
| Water Content (Karl Fischer): | $\leq 2.5\%$ |
| Optical Rotation: | $+112^\circ$ to $+124^\circ$ |
| Storage Conditions: | -20°C |
| Description: | Cefotetan is a cephamycin antibiotic grouped with the second-generation cephalosporins. TOKU-E offers two forms of cefotetan: |

- Cefotetan (C012)
- Cefotetan Disodium (C117)

Cefotetan is sparingly soluble in water (0.51 mg/mL) and cefotetan disodium is slightly more soluble at 1 mg/mL.

Mechanism of Action: Like β -lactams, cephamycins 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 -lactam antibiotics is commonly due to cells containing plasmid encoded β -lactamases, however, many cephamycins are unaffected by this mechanism.

Spectrum: Cefotetan is a broad-spectrum antibiotic targeting a wide variety of gram-positive and gram-negative bacteria. Like many cephamycins, cefotetan is very effective against anaerobic bacteria such as *Bacteroides* and *Clostridium* species.

Microbiology Applications Cefotetan is commonly used in clinical *in vitro* microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against aerobic and anaerobic gram positive and gram negative microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options for infected patients. Representative MIC values include:

- *Bacteroides fragilis* 2 µg/mL – 512 µg/mL
- *Clostridium difficile* 8 µg/mL - 32 µg/mL
- For additional cefotetan MIC values, [click here](#).

References:

Georgopapadakou, N. H. "Mechanisms of Action of Cephalosporin 3'-quinolone Esters, Carbamates, and Tertiary Amines in Escherichia Coli." *American Society for Microbiology* 37.3 (1992): 559-65. *Antimicrobial Agents and Chemotherapy*. Web. 21 Aug. 2012.

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