Product Name: Cefradine

Product Number: C057

CAS Number: 38821-53-3

Molecular Formula: \( \text{C}_{16}\text{H}_{19}\text{N}_{3}\text{O}_{4}\text{S} \cdot \text{H}_{2}\text{O} \)

Molecular Weight: 349.40

Form: Powder

Appearance: White to yellowish crystalline powder

Source: Semi-synthetic

Water Content (Karl Fischer): \( \leq 6.0\% \)

pH: 3.5-6.0

Optical Rotation: +80° to +90°

Storage Conditions: -20°C

Description: Cefradine (also known as cephradine) is a first generation cephalosporin antibiotic which has a similar anti-bacterial spectrum of activity to cefalexin. Cefradine is freely soluble in aqueous solution at 21.3 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.