Product Name: Methicillin Sodium

Product Number: M029

CAS Number: 132-92-3

Molecular Formula: \( \text{C}_{17}\text{H}_{19}\text{N}_{2}\text{NaO}_{6}\text{S} \)

Molecular Weight: 402.40

Form: Powder

Appearance: White or almost white powder

Solubility: Acetone: 0.35 mg/mL
Ethanol: 40 mg/mL
Water: Freely soluble

Source: Semi-synthetic

Water Content (Karl Fischer): \( \leq 10.0\% \)

Melting Point: 196-197°C (dec.)

Optical Rotation: +225°

Storage Conditions: -20°C

Description: Methicillin Sodium is a narrow spectrum \( \beta \)-lactam antibiotic in the penicillin family and is commonly used as a selective agent in pathogen isolation media, and in antimicrobial susceptibility testing. It is soluble in aqueous solution (0.3 mg/mL).

Mechanism of Action: \( \beta \)-lactams interfere with penicillin binding protein (PBP) activity involved in the final phase of peptidoglycan synthesis. PBPs 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 \( \beta \)-lactams is commonly due to cells containing plasmid encoded \( \beta \)-lactamases. Methicillin is mostly resistant to \( \beta \)-lactamases.

Spectrum: Methicillin targets primarily the cell wall of Gram-positive organisms especially *Staphylococcus aureus*. 
**Microbiology Applications**

Because of its widespread resistance among medically significant microbes, methicillin may be used as a selective agent in pathogen isolation media to inhibit insignificant microbial background growth.

Methicillin Sodium is commonly used in clinical *in vitro* microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against Gram-positive microbial isolates. Methicillin is particularly used to test MRSA (Methicillin-resistant *Staphylococcus aureus*). Medical microbiologists use AST results to recommend antibiotic treatment options. Representative MIC values include:

- *Staphylococcus aureus* 0.5 µg/mL - 32 µg/mL

For a representative list of Methicillin MIC values, click here.

**References:**


If you need any help, contact us: info@toku-e.com. Find more information on: www.toku-e.com/