Product Name: Ampicillin/Sulbactam (2:1)

Product Number: A071

CAS Number: 117060-71-6

Molecular Formula: Ampicillin: C\textsubscript{16}H\textsubscript{19}N\textsubscript{3}O\textsubscript{4}S
Sulbactam: C\textsubscript{8}H\textsubscript{11}NO\textsubscript{5}S

Molecular Weight: Mixture

Form: Powder

Appearance: White or almost white crystalline powder

Water Content (Karl Fischer): ≤2.0%

pH: 8.0-10.0

Description:
Ampicillin is a member of the extended spectrum β-lactam family and similar in structure to penicillin. Sulbactam is a β-lactamase inhibitor used to increase potency of β-lactam antibiotics.

TOKU-E offers five forms of ampicillin:

- Ampicillin/Sulbactam (2:1) (A071)
- Ampicillin Anhydrous (A043)
- Ampicillin Sodium (A042)
- Ampicillin Trihydrate, USP (A009)
- Ampicillin Trihydrate, EP (A020)

In aqueous solution, ampicillin sodium is freely soluble (50 mg/mL). Ampicillin trihydrate is slightly soluble in water (10 mg/mL) and freely soluble in 1 N HCl (50 mg/mL). Ampicillin anhydrous is sparingly soluble in water and freely soluble in 1 N NH\textsubscript{4}OH (50 mg/mL). Ampicillin sodium is commonly used to select for successfully transformed bacteria. Ampicillin anhydrous (powder) is the most stable and pure form of ampicillin TOKU-E offers.

Mechanism of Action:
Like all β-lactams, ampicillin interferes with PBP (penicillin binding protein) activity otherwise involved in the final phase of peptidoglycan synthesis. PBPs are enzymes which catalyze a pentaglycine crosslink between alanine and lysine residues. Without a pentaglycine crosslink, the integrity of the cell wall is severely compromised ultimately leading to cell lysis.

Spectrum:
Ampicillin targets non ESBL (Extended Spectrum β-lactamase) bacteria including \textit{Staphylococcus} and \textit{Streptococcus} and medically important enteric pathogens such as \textit{Shigella} and \textit{Salmonella}. Interestingly, ampicillin has been found to be effective against certain β-lactam sensitive VRE or vancomycin resistant \textit{Enterococcus}; a glycopeptide antibiotic resistant "superbug."
**Microbiology Applications** Ampicillin anhydrous 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.

**Media Supplements**

Ampicillin can be used as a selective agent in several types of isolation media:

*Aeromonas Medium Base* - Ampicillin Selective Supplement

**References:**


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