# Fosfomycin Sodium
# PRODUCT DATA SHEET

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| **Product Name:** | Fosfomycin Sodium |
| **Product Number:** | F013 |
| **CAS Number:** | 26016-99-9 |
| **Molecular Formula:** | $C_3H_5Na_2O_4P$ |
| **Molecular Weight:** | 182.02 |
| **Form:** | Powder |
| **Appearance:** | White or off-white powder |
| **Solubility:** | Water: Very soluble |
| **Source:** | *Streptomyces spp.* |
| **Water Content (Karl Fischer):** | ≤1.0% |
| **pH:** | 9.0-10.5 |
| **Melting Point:** | >300°C |
| **Optical Rotation:** | -13° to -15° |
| **Storage Conditions:** | 2-8°C |
| **Description:** | Fosfomycin Sodium is broad-spectrum phosphoenolpyruvate analog antibiotic. It has a chemically unique structure unlike any other antibacterial agent. Fosfomycin has been found to have an immunomodulatory effect on human B-cell activation. Fosfomycin Sodium is freely soluble in aqueous solution. |
| **Mechanism of Action:** | Fosfomycin prevents peptidoglycan synthesis by inhibiting MurA, an enzyme responsible for synthesizing N-acetylmuramic acid, a major component of peptidoglycan. The compound also inactivates the bacterial enzyme N-acetylglucosamine-3-o-enolpyruvyl transferase, which is essential for the synthesis of bacterial wall peptidoglycan.<br><br>Fosfomycin has been found to have immunosuppressive activity, which is not linked to its bactericidal activity, since the enantiomer of Fosfomycin does not have antimicrobial activity. Rather, the immunosuppressive action is seen by its immunomodulatory effect on human B-cell activation. |
| **Spectrum:** | Fosfomycin sodium is a broad spectrum antibiotic frequently used to treat bacterial infections of the urinary tract. Fosfomycin has been found to be effective against certain β-lactam resistant strains of VRE or vancomycin resistant *Enterococcus*; a glycopeptide antibiotic resistant "superbug." |

**Microbiology Applications** Fosfomycin sodium 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. Representative MIC values include:

- *Escherichia coli* 0.19 µg/mL – 64 µg/mL
- *Helicobacter pylori* 0.05 µg/mL – 12.5 µg/mL
- For a complete list of Fosfomycin Sodium MIC values, click here.

## Media Supplements

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

*Listeria* Selective Agar - *Listeria* Selective Supplement

*Listeria* Selective Agar - Modified *Listeria* Selective Supplement

Fosfomycin Sodium can be used for bacterial infections of the urinary tract. Fosfomycin has been found to be effective against certain β-lactam resistant strains of VRE or vancomycin resistant *Enterococcus*; a glycopeptide antibiotic resistant "superbug."

**References:**

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Falagas ME and Kastaris AC (2010) Fosfomycin for the treatment of multidrug-resistant, including extended-spectrum β-lactamase producing, *Enterobacteriaceae* infections: A systematic review. Lancet Infect. Dis. 10(1): 43-50 *PMID* 20129148

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