

Product Name: Framycetin sulfate

Product Number: F017

CAS Number: 4146-30-9

Molecular Formula: $C_{23}H_{48}N_6O_{17}S$

Molecular Weight: 712.72

Form: powder

Appearance: white powder

Source: *Streptomyces fradiae*

Storage Conditions: -20°C

Description: Framycetin sulfate (syn: Neomycin B sulfate) is the sulfate salt form of Neomycin, a broad-spectrum aminoglycoside antibiotic derived from *Streptomyces fradiae*. Neomycin B is ~ 65% more active than its stereoisomer, Neomycin C, and ~ 90% more active than Neomycin A, the minor component of the Neomycin complex.

We also offer:

- Neomycin B Sulfate, EvoPure® ([N019](#))

Mechanism of Action: Aminoglycosides target the 30S ribosomal subunit, specifically binding to the 16S rRNA and S12 protein. This results in inability to read mRNA ultimately producing a faulty or nonexistent protein. It also induces misreading of the mRNA template and causes translational frameshift, leading to premature termination and bacterial cell death.

Spectrum: broad-spectrum, against Gram-positive and Gram-negative bacteria. Ineffective against fungi, viruses and most anaerobic bacteria.

Microbiology Applications Neomycin can be used for gene selection, via exploiting the resistance gene (NPT II) (Aragão, 2009).

Neomycin 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. Representative effective ranges include:

- *Pseudomonas aeruginosa* 0.5 µg/mL – 64 µg/mL
- *Haemophilus influenzae* 1.6 µg/mL – 6.3 µg/mL

For a representative list of Neomycin MIC values, [click here](#).

Neomycin Sulfate can be used for food testing in TSN agar to select for *Clostridium perfringens* and inhibit growth of *Enterobacteria* and *Clostridium bifermentans*.

Plant Biology Applications

Neomycin is commonly used in negative selections for plants which have been successfully been transformed with a plasmid conferring resistance via *Agrobacterium* mediated transformation.

References:

Aragão FJL and Brasileiro ACM (2009) Positive, negative and marker-free strategies for transgenic plant selection. Braz. J. Plant Physiol., 14(1):1-10

Dai S et al (2001) Comparative analysis of transgenic rice plants obtained by *Agrobacterium*-mediated transformation and particle bombardment. Mol. Breeding 7: 25–33

Davis BD (1987) Mechanism of bactericidal action of aminoglycosides. Microbiol. Rev. 51(3):341-50

Hoeschst MR (2000) Soframycin, framycetin sulfate. In: Welbanks L (ed): Compendium of pharmaceuticals and specialties, 35th ed. Can. Pharma Assn. Ottawa, Ontario, p.1474

Robertson JH (1971) Antimicrobial activity of Neomycin C against *Staphylococcus epidermidis*. Appl. Microbiol. 22(6): 1164-1165

Tsuji K and Robertson JH (1969) Comparative study of responses to Neomycins B and C by microbiological and gas-liquid chromatographic assay methods. App. Microbiol. 18(3):396-398