



Product Information

Gentamicin sulfate salt Molecular Biology

Product Number **G8648**
Storage Temperature 2-8 °C

Product Description

CAS Number: 1405-41-0

Molecular Formula¹:

Gentamicin C₁: C₂₁H₄₃N₅O₇

Gentamicin C₂: C₂₀H₄₁N₅O₇

Gentamicin C_{1a}: C₁₉H₃₉N₅O₇

Molecular Weight (free base)¹:

Gentamicin C₁ = 477.6

Gentamicin C₂ = 463.6

Gentamicin C_{1a} = 449.5

Melting Point: 218-237 °C¹

Synonyms: Gentamycin, Garamycin, Gentiomycin C

This product is designated as Molecular Biology grade and is suitable for molecular biology applications. This product has been sterilized by γ -irradiation.

Gentamicin is an aminoglycoside antibiotic complex produced by fermentation of *Micromonospora purpurea* or *M. echinospora*.¹ It is a mixture of 3 major components designated as C₁, C_{1a}, and C₂, and it is used as the sulfate salt. The ratio of the three major components by HPLC analysis are:

C₁: < 45%

C_{1a}: < 35%

C₂: < 30%

Each component consists of five basic nitrogens and requires five equivalents of sulfuric acid per mole of gentamicin base.²

Gentamicin sulfate is a broad spectrum antibiotic. It inhibits the growth of a wide variety of Gram-positive and Gram-negative microorganisms, including strains resistant to tetracycline, chloramphenicol, kanamycin, and colistin, particularly strains of *Pseudomonas*, *Proteus*, *Staphylococcus*, and *Streptococcus*.^{3,4} Gentamicin sulfate inhibits bacterial protein biosynthesis by binding to the 30S subunit of the ribosome.^{4,5}

For molecular biology applications, the recommended working concentration is 10-15 μ g/ml.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

Gentamicin sulfate is soluble in water (50 mg/ml), yielding a clear to very slightly hazy, colorless to faint yellow solution. It is practically insoluble in alcohol and other organic solvents.² A 4% solution in water yields a pH of 3.5 - 5.5.⁶

For Product G 8648, stock solutions should be prepared directly in the vial with sterile water, to a concentration of 5 - 20 mg/ml.

Storage/Stability

For long-term storage, stock solutions of G 8648 should be stored at -20 °C. Solutions of gentamicin have been shown to be stable when stored at room temperature and in boiling aqueous buffers of pH 2-14.² A solution at 1 mg/ml in 0.1 M potassium phosphate buffer (pH 8.0), stored at 2-8 °C, should be used within 30 days.³ Gentamicin sulfate solution may be sterilized by filtration. The stock solutions are stable at 37 °C for 5 days.

References

1. The Merck Index, 12th ed., Entry # 4398.
2. Rosenkrantz, B. E., et al., Analytical Profiles of Drug Substances, **9**, 295-340 (1980).
3. USP NF, 16th ed., p. 1162.
4. Antibiotics: origin, nature, and properties, Korzybski, T. et al., American Society for Microbiology (Washington, DC: 1978), pp. 712-723.
5. Antibiotics in Laboratory Medicine, 2nd ed., Lorian, V., ed., Williams and Wilkins (Baltimore, MD: 1986), pp. 694-696.
6. Martindale: The Extra Pharmacopoeia, 31st ed., Reynolds, J.E.F., ed., The Pharmaceutical Press (London, England: 1996), pp. 235-238.

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