Gentamicin sulfate salt
Cell Culture Tested

Product Number  G 1264
Storage Temperature  2-8 °C

Product Description
CAS Number: 1405-41-0

Molecular Formula\(^1\):
Gentamicin C\(_1\): C\(_{21}\)H\(_{43}\)N\(_5\)O\(_7\)
Gentamicin C\(_2\): C\(_{20}\)H\(_{41}\)N\(_5\)O\(_7\)
Gentamicin C\(_{1a}\): C\(_{19}\)H\(_{39}\)N\(_5\)O\(_7\)

Molecular Weight (free base)\(^1\):
Gentamicin C\(_1\) = 477.6
Gentamicin C\(_2\) = 463.6
Gentamicin C\(_{1a}\) = 449.5

Melting Point: 218-237 °C\(^1\)
\([\alpha]\)\(^{25}\)_d = 102 (water)\(^1\)
Synonyms: Gentamycin, Garamycin, Gentiomycin C

This product is cell culture tested and is appropriate for use in cell culture applications.

Gentamicin is an aminoglycoside antibiotic complex produced by fermentation of \textit{Micromonospora purpurea} or \textit{M. echinospora}.\(^1\) It is a mixture of 3 major components designated as C\(_1\), C\(_{1a}\), and C\(_2\). The ratio of the three major components by HPLC analysis are:

C\(_1\): < 45%
C\(_{1a}\): < 35%
C\(_2\): < 30%

Gentamicin is used as the sulfate salt. Each component consists of five basic nitrogens and requires five equivalents of sulfuric acid per mole of gentamicin base.\(^5\)

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 \textit{Pseudomonas}, \textit{Proteus}, \textit{Staphylococcus}, and \textit{Streptococcus}.\(^3,4\)

Gentamicin sulfate inhibits bacterial protein biosynthesis by binding to the 30S subunit of the ribosome.\(^4,5\)

The general recommended working concentration for eukaryotic cell culture is 50 µg/ml, and 15 µg/ml for prokaryotic cells.

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.\(^6\)

Storage/Stability
Sterile solutions of gentamicin sulfate should be stored at 2-8 °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 solutions may be sterilized by filtration.
References
1. The Merck Index, 12th ed., Entry# 4398.
3. USP NF, 16th ed., p. 1162.

Sigma brand products are sold through Sigma-Aldrich, Inc.
Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.