Spectral Data - G418 disulfate®, EvoPure®

G418 disulfate, EvoPure®

PRODUCT DATA SHEET

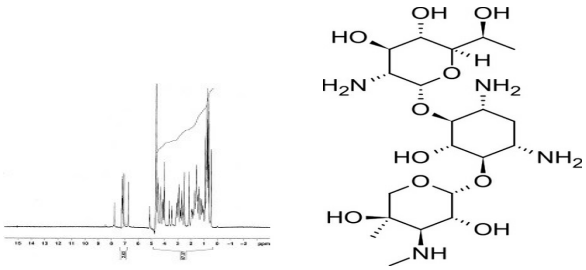
issue date 08/16/2017

Product Name:	G418 disulfate, EvoPure®
Product Number:	G030
CAS Number:	108321-42-2
Molecular Formula:	$C_{20}H_{40}N_4O_{10} \cdot xH_2SO_4$ (lot specific)
Molecular Weight:	496.55 g/mol (Free base)
Form:	Powder
Solubility:	Soluble
Source:	Biosynthetic: produced by *Micromonospora rhodorangea.*
Absorbance:	1mg/ml (water): 280nm <0.015 570nm <0.01 100mg/ml (water): 570nm <0.01 1.74g/25 ml (water): 280nm <0.7
pH:	4.6-6.0
Boiling Point:	1012.1 °C
Flash Point:	565.9 °C
Storage Conditions:	2-8 °C
Description:	G418 disulfate, EvoPure® is a high purity (≥99.0%) form of G418 disulfate and is free of impurities present in standard grade G418. G418 disulfate, also known as G418 sulfate, is routinely used as a selection antibiotic in cell culture gene selection applications. G418 disulfate is an aminoglycoside antibiotic isolated from *Micromonospora rhodorangea* and is closely related to the gentamicins; most notably, gentamicin B1. G418 is a generic name of Geneticin® TOKU-E also offers G418 disulfate solution and G418 disulfate powder .
Mechanism of Action:	G418 disulfate, and other aminoglycosides, including kanamycin and neomycin, prevent protein synthesis by blocking the elongation step in prokaryotic and eukaryotic ribosomes. **Mechanism of resistance:** Resistance to G418 sulfate is conferred by the *neo* gene (neomycin resistant gene) from either Tn5 or Tn601 (903) transposons. Cells successfully transfected with resistance plasmids containing the *neo* resistance gene can express aminoglycoside 3'-phosphotransferase (APT 3' I or APT 3' II) which covalently modifies G418 to 3-phosphoric G418. 3-phosphoric G418 has negligible potency and has low-affinity for prokaryotic or eukaryotic ribosomes.
Spectrum:	G418 disulfate is toxic to susceptible prokaryotic and eukaryotic cells including fungi (yeasts and molds), bacteria, mammalian and plant cells.

Microbiology Applications G418 disulfate can be used as a selection agent for G418 resistant bacteria or fungi after transformation.

Technical Data:

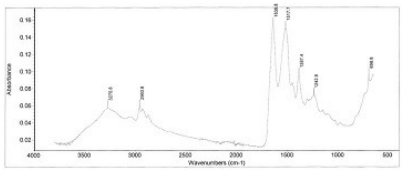
HNMR Spectra



Click to enlarge

Solvent: D2O
Instrument: Mercury 300
Frequency: 300 MHz

FTIR Spectra



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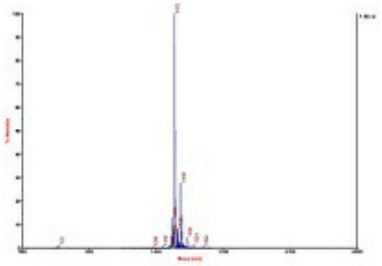
Mass Spectra



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Polarity/Scan Type: Positive
Solvent: Water
Solution Concentration: 10 mg/mL

References:

Aragão F.J.L. and Brasileiro A.C.M., Positive, negative and marker-free strategies for transgenic plant selection. Braz. J. Plant Physiol., 14(1):1-10, 2002

Davis, Bernard D. "Mechanism of Bactericidal Action of Aminoglycosides."Microbiological Reviews 51.3 (1987): 341-50.

Dong Z.J. and McHughen, A. Improved procedure for production of transgenic flax plants using Agrobacterium tumefaciens. Plant Science, 88 (1993) 61-71 61. Elsevier Scientific Publishers.