



G418 Disulfate Solution (50 mg/ml in Water)

PRODUCT DATA SHEET

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Product Name:	G418 Disulfate Solution (50 mg/ml in Water)
Product Number:	G020-G021
CAS Number:	108321-42-2
Molecular Formula:	$C_{20}H_{40}N_4O_{10} \cdot 2H_2SO_4$
Molecular Weight:	692.71 g/mol
Form:	Solution
Appearance:	Clear and colorless solution
Source:	<i>Micromonospora rhodorangea</i>
Biological Assay:	ED50 Resistant: Not less than 2,500 μ g/mL ED50 Sensitive: Not more than 400 μ g/mL
Elemental Analysis:	Carbon: 28.80 - 36.07% Hydrogen: 5.76 - 7.76% Nitrogen: 6.72 - 8.41% Waters of Hydration: 0 to 6
Ammonia:	Not more than 1.0%
Water Content (Karl Fischer):	(Powder) Not more than 12.0%
Potency (on a dry basis):	Not less than 720 μ g/mg
Absorbance:	280nm (1mg/mL): Not more than 0.015 570nm (100mg/mL): Not more than 0.10
pH:	4.6 - 6.0
Optical Rotation:	+104° to +121°
Storage Conditions:	2-8°C
Description:	G418 Disulfate Solution (50 mg/ml in Water) is an aqueous solution of G418 Disulfate. G418 Disulfate, an aminoglycoside antibiotic originally isolated from <i>Micromonospora rhodorangea</i> , is routinely used for gene selection in cell culture. The aqueous format allows for streamlined workflows.

We also offer:

- G418 Disulfate (G001)
- G418 Disulfate, EvoPure (G030)

Mechanism of Action: G418 Disulfate, along with other aminoglycosides, prevent protein synthesis. Resistance to G418 Disulfate is conferred by the neomycin resistance gene (*neo*) 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, which has negligible potency and has low-affinity for prokaryotic and 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.

References:

References for G418 Disulfate from TOKU-E:

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Suasnavas EA (2013) Characterization and potential utility of porcine trophoblast-derived stem-like cells. MS thesis, Utah State University, Logan, UT

General:

Aragão FJL and Brasileiro ACM (2002) Positive, negative and marker-free strategies for transgenic plant selection. *Braz. J. Plant Physiol.* 14(1):1-10

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

Lin-Cereghino, J et al (2008) Direct selection of *Pichia pastoris* expression strains using new G418 resistance vectors. *Yeast* 25:293-99.

Shin, Y (2007) Selection of NptII transgenic sweet potato plants Using G418 and paromomycin. *J. Plant Biol.* 50(2):206-12