



G418 Disulfate (Low Endotoxin) PRODUCT DATA SHEET

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Product Name:	G418 Disulfate (Low Endotoxin)
Product Number:	G048
CAS Number:	108321-42-2
Molecular Formula:	$C_{20}H_{40}N_4O_{10} \cdot 2 H_2SO_4$
Molecular Weight:	692.71
Form:	Powder
Appearance:	White or off-white powder
Solubility:	(100mg/mL in H ₂ O): Clear and complete
Biological Assay:	ED ₅₀ Resistant: ≥2500 ug/mL ED ₅₀ Sensitive: ≤400 ug/mL
Elemental Analysis:	Carbon: 28.8 - 36.07% Hydrogen: 5.76 - 7.76% Nitrogen: 6.72 - 8.41% Water of hydration: 0 to 6
Ammonia:	≤1.0%
Water Content (Karl Fischer):	≤12.0%
Potency (on a dry basis):	Not less than 720 ug/mg
Absorbance:	1mg/mL:280nm <0.015 100mg/mL: 570nm <0.10
pH:	(200mg/mL) 4.6 - 6.0
Storage Conditions:	Ambient
Description:	<p>G418 Disulfate (Low Endotoxin) has a strict endotoxin content of ≤ 1 EU/mg. G418 Disulfate, an aminoglycoside antibiotic originally isolated from <i>Micromonospora rhodorangea</i>, is routinely used for gene selection in cell culture. The presence of endotoxin in G418 Disulfate can decrease transfection efficiency and even be toxic to resistant eukaryotic cells.</p> <p>We also offer:</p> <ul style="list-style-type: none">• G418 Disulfate (<u>G001</u>)• G418 Disulfate Solution (50 mg/ml) in Water (<u>G020-G021</u>)• G418 Disulfate, EvoPure (<u>G030</u>)

- Mechanism of Action:** G418 Disulfate, along with other aminoglycosides, prevent protein synthesis. Resistance to G418 Disulfate 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, 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:**
- 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
- Delrue I, Pan Q, Baczmanska AK, Callens BW and Verdoodt LLM (2018) Determination of the selection capacity of antibiotics for gene selection. *Biotechnol. J.* 13(8):1700747 PMID 29436782
- 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

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