

Product Information Sheet

G434 Gellan Gum Powder

Synonym: CultureGel™ Type I – BioTech Grade
CAS: 71010-52-1

Properties

Form: Powder
Appearance: White to Cream Powder
Application: Plant Tissue Culture Gelling Agent
Solubility: Partially Soluble in Cold Water; Soluble in Boiling Water
Typical Working Concentration: 2 to 4 grams per liter
Storage Temp: Room Temperature
Other Notes: Transparency: Minimum 85%
Gel Strength: Minimum 800 g/cm²
Gelrite® Equivalent
Plant Tissue Culture Tested

Application Notes

Gellan gum is produced by bacterial fermentation from a pure culture of *Sphingomonas elodea* (formerly *Pseudomonas elodea*). *S. elodea* is a well-characterized, gram-negative, non-pathogenic bacterium that secretes a high molecular weight polysaccharide gum. Gellan gum structure is composed of repeating tetrasaccharide (4 simple sugars) units, each consisting of two glucose (Glc) residues, one glucuronic acid (GlcA) residue, and one rhamnose (Rha) residue.² Gellan gum will form a gel in the presence of mono- or divalent cations; the latter being more efficient, e.g., calcium, magnesium; however, gellan gum (Product No. G434) is not recommended for use with DKW (9.3 mM Ca++) or other media e.g., Quoirin & Lepoivre Basal Salt Mixture containing high calcium levels as they have shown to produce a soft and cloudy gel.

Hyperhydricity is often observed when culturing plant shoots on gellan gum. It is a condition that is characterized by translucent appearance that is associated with chlorophyll deficiency, poorly developed mesophyll layers and cell walls, and high water content³; however, this condition can be corrected by increasing gellan gum concentration or culturing on agar gels.

Gellan gum is typically used at 2 to 4 g/L. It is suspended in medium that is room temperature or colder. Attempting to suspend it in hot medium will usually result in an incomplete, lumpy suspension that will not melt and dissolve uniformly when autoclaved. It should be added to medium after all heat-stable supplements have been added.

PhytoTechnology Laboratories® also carries CP Kelco U.S. brand gellan gum called Gelzan, Product No. G3251.

Please Note: While PhytoTechnology Laboratories™ tests each lot of this product with two or more plant cell/ tissue culture lines, it is the sole responsibility of the purchaser to determine the appropriateness of this product for the specific plants that are being cultured and applications that are being used.

References

1. Merck 13, 4394
2. Jansson, PE and B Lindberg. 1983. Structural studies of gellan gum, an extracellular polysaccharide elaborated by *Pseudomonas elodea*. Carbohydr. Res. 124:135-139.
3. Kevers C, Franck T, Strasser RJ, Dommès J, Gasper T (2004). Hyperhydricity of micropropagated shoots: a typically stress induced change of physiological state. Plant Cell Tissue Organ Cult. 77: 181-191.

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Page 1 of 1
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