

GELLAN GUM - LOW ACYL

GELUM-LA

INS 418 ; CAS No. 71010-52-1

It is a water-soluble Polysaccharide which is produced by the aerobic fermentation of the microorganism *Sphingomonas elodea*. This is a gelling agent, heat stabilizer in fruit preparations & stabilizer in soy drinks, plant tissue culture media etc.

Features of GELUM-LA

1. GELUM-LA has Gel Strength as high as 1300g/cm³ which is perfect for gelling applications
2. Transparency/ Transmittance can be as high as 95% (for Plant Tissue Culture use)
3. Heat Stability; Heat Irreversible
4. Excellent acid stability
5. Better taste-releasing ability
6. Good compatibility with other ingredients and hydrocolloids
7. Fluid gel suspension
8. Very low dosage (0.01%-1.5%)
9. Moisture retention capability

General Procedure for using GELUM-LA

1. Disperse GELUM-LA in cool deionized water by stirring
2. Heat this solution to 85°C for 20-30 minutes (or boil for 5-10 minutes)
3. Add desired cations or salts into the above heated solution.
4. Cool down the solution to temperature where stabilizing/gelling functions are required.

Method for Dispersion:

To disperse GELUM-LA without lump formation, premix it with the other dry ingredients (except cations or salts), and add to aqueous system under efficient stirring. Continue stirring to obtain a complete dispersion.

Method for Dissolution/Hydration of GELUM-LA:

The dissolution of GELUM-LA depends on the medium & the process & it is improved by heat treatment (time, temperature), shear stress (stirrer, homogenizer). A complete dissolution can be rapidly obtained by boiling for 5 to 10 minutes at about 85-90°C for 20-30 minutes & adding complexing agents like sodium citrate.

GEL FORMATION

On cooling to 25°C, GELUM-LA forms a gel in deionized water. Adding cations to the solution increases the setting temperature.

TYPICAL APPLICATIONS:

GELUM-LA provides gelation, suspension or stabilisation to food products. It is effective in low concentrations & hence economic. It can be used alone or in combination with other hydrocolloids to produce desired texture of the final product.

Some Specific Applications:

GELUM-LA is used in various food formulations,

- frostings; meat jellies (aspics)
- brownies and bakery fillings.
- gelatine and puddings.
- non-standardized jams and jellies.
- dairy drinks and soy milks.
- nutritional products.
- beverages (dairy alternative milks, dairy drinks, fruit drinks, drinking jellies, novelty drinks).
- beverage mixers.
- kefir.
- yogurt, sour cream & cheese wherein standards of identity do not preclude its use.
- yogurt fruit and fruit sauces.
- marinades.
- pourable & spoon able dressings.
- and dairy desserts

For examples:

1. Beverages: 0.012%-0.05%; Typical Drinks: Aloe Vera Beverage; Yellow Peach Pulps Drinks; Pineapple Pulps Drinks; Coconut Drinks; and various of fruit juice.
2. Jellies: dosage: 0.06%-0.5%.
3. Fruit Jams: dosage: 0.2%.
4. Confectionery and Confectionery jellies: dosage: 0.05%-0.8%.
5. Solid Air fresheners: dosage: 0.8%-1.5%.
6. Dessert Fillings: 0.8%-1.0%.
7. Jelly Drink: 0.25%-0.4%
8. Plant tissue culture applications: 1/5 agar use level.

GELUM-LA gum, in aqueous solutions is very sensitive to calcium, magnesium, potassium, sodium ions etc. & affects its dissolution. But the gel & suspension effects require these ions. Thus, one must add soluble salts after GELUM-LA has dissolved completely, the best sol temperature is above 80⁰C. The typical methodology is:

1. Add GELUM-LA in cool deionized water & stir completely
2. Heat to above 85⁰C
3. Add required salts (cations)
4. Cool to form a stable gel or suspension

GELUM-LA is used in making transparent suspension drinks, jellies, jams, tissue culture media, air fresheners, cosmetics etc.