COLONY GUMS
Hydrocolloid & Stabilizer Systems

Xanthan Gum

Xanthan Gum

SOURCE

Produced by fermentation of a pure culture strain of *Xanthomonas Campestris*

QUALITIES

- **Hot & Cold Soluble**
- **Dissolves Readily in Water**
- **Enzyme, Salt & Heat Tolerance**
- **Synergy with Galactomannans**
- **Stable in Wide Range of pH Values**

USES

The applications for Xanthan Gum are myriad.

SOURCE & PROCESSING

Xanthan Gum is produced by fermentation, using a pure culture strain of *Xanthomonas Campestris* with glucose and related chemicals as substrates, followed by purification and recovery with an alcohol solvent. Xanthan Gum consists of repeated pentassaccharide units to form cellulosic backbone through the 1, 4B-D glucosidic linkage and a side chain.

The strain of *Xanthomonas Campestris* is normally stored as freeze-dried ampoules. To activite a biological effect it is inoculated with a nutrient source under essential conditions; prepared inoculums are ready for large-scale fermentation.

Fermentation is preformed using a batch system during which the pH, foam and aeration are closely monitored. After fermentation is completed, the "broth" or "soup" is sterilized to prevent any contamination to both the "broth" and the environment. Sterilization of the equipment is imperative before, after and in between the next batches to ensure integrity.

The next stage is referred to as the "coagulation phase". The gum is recovered from the broth by the use of precipitation by alcohol, mainly isopropyl or ethanol. The recovered coagulum is washed, dried and milled to a specific particle size. The powdered Xanthan Gum goes through further processing of interblending and sifting to achieve a more uniform end product.

USES

The applications for Xanthan Gum seem to be endless. Please note a few widely used below:

Sauces and Dressings

- Adds "cling"
- pH-stable
- Resistant to enzymatic degradation
- Good mouth feel
- Good flavor release with low masking
- Clean fluid break
- Rapid hydration
- Na-stable without adverse viscosity changes
- Excellent thermal stability

Visit www.ColonyGums.com for samples, technical assistance or placing an order.

PROPERTIES

Physical
Xantham Gum is a white to pale white powder and mainly is an 80–100 mesh. Particle size can vary depending on the customer specifications and can consist of an agglomerated product to fine 200 mesh powder.

Solubility
Xantham Gum is both hot and cold soluble and dissolves readily in water. Solubility is achieved in wide range of pH values and salt concentrations. Care is needed in dispersing Xanthan Gum and it is recommended that all dry ingredients be blended together and added to the liquid using high-speed agitation. The powdered mixture should be added to the vortex without entrapping air bubbles. Dispersibility can be improved by wetting the gum with a non-solvent such as alcohols or some oils. Hydration will also be slowed when introduced to a brine solution.

Stability
Xanthan Gum is stable in applications with a wide range of pH values (2–12). It has a tolerance to enzymes, salt, and heat. For instance, Xanthan Gum in a 1.1% citric acid/citrate solution at a ph of 3.4 at 90C for 24 hours showed excellent thermal stability. Xanthan Gum also exhibits excellent freeze-thaw stability.

Viscosity
Viscosity values are generally not affected by changes in pH, addition of salt and thermal changes for extended periods of time whereas other hydrocolloids break down under the same conditions. Xanthan Gum also exhibits excellent synergy with galactomannans such as Guar Gum and Locust Bean Gum.

Chemical Composition
Xanthan Gum is a heteropolysaccarids of a high molecular weight (Mw-2.5, 106). Hydrolysis gives individual monomer units of D-glucose, D-mannose and D-glucuronic acid. The main chain of Xanthan Gum contains b-D-glucose units linked through the 1- and 4 positions; identical to that of cellulose. The side chain is a tri-saccharide occurring in every alternate glucose residue, consists of a D-mannose, b-D-glucuronic acid and a terminal b-D-mannose unit.

Dairy
- Excellent mixing, pumping and filling due to its pseudo-plastic behavior
- Compatible with Guar, Locust Bean Gum and Carrageenan
- Tolerance to electrolytes
- Controls ice crystal size
- Provides heat shock protection
- Controls syneresis
- Improves shelf life of product
- Adds texture and mouth feel
- Shear stability

Bakery
- Gluten substitute @ 1 – 2%
- Controls water migration
- Acid stable in low pH pie fillings
- Suspends solids
- Heat stability
- Controls ice crystal size
- Improves shelf life
- Freeze/thaw stability
- Replaces starch
- Natural label

Beverages
- Improves mouth feel
- Rapid hydration
- Good flavor release
- Pseudo-plastic characteristics improve flow and suspends solids
- Tolerance to salt
- Tolerance to low pH and enzymes
- Shear resistance
- High viscosity at low concentration
- Natural label

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