



Guar Gum Powder

Guar Gum is a natural polysaccharide derived from the seeds of the guar plant (*Cyamopsis tetragonoloba*). It is widely used as a thickening, gelling, and stabilizing agent in various industries, including food, pharmaceuticals, and cosmetics. Guar gum is valued for its ability to increase the viscosity of aqueous solutions and its versatility in different formulations.

Chemical Properties of Guar Gum:

1. **Molecular Structure:**

- Guar gum is a galactomannan, a type of polysaccharide. Its molecular structure consists of a backbone of mannose units linked by β -(1 \rightarrow 4) glycosidic bonds, with galactose units attached as side branches.
- The basic repeating unit has the formula $C_{10}H_{18}O_{10}$, where the structure includes a chain of mannose and branching galactose residues.

2. **Physical Appearance:**

- Guar gum is a white to off-white powder. It is odorless and tasteless, making it suitable for use in food and cosmetic formulations without affecting the sensory properties of the products.

3. **Solubility:**

- Guar gum is soluble in water but forms a gel or viscous solution rather than a true solution. It can swell and increase the viscosity of water at relatively low concentrations, typically between 0.5% and 2% w/v.

4. **Viscosity:**

- Guar gum is known for its ability to significantly increase the viscosity of aqueous solutions. It is highly effective even at low concentrations and is used to achieve desired thickness and texture in

various formulations. Its viscosity is shear-thinning, meaning it decreases under shear stress (e.g., stirring or shaking) and returns to its original viscosity when the stress is removed.

5. **pH Stability:**

- Guar gum is stable across a wide range of pH levels, typically from pH 4 to 10. This stability allows it to be used in formulations with varying pH levels without significant loss of its thickening properties.