COLONY GUMS

Hydrocolloid & Stabilizer Systems

Gum Ghatti

Gum Ghatti

SOURCE

A water-soluble complex polysaccharide exuded from the bark of the tree Anogeissus latifolia of the family Combretaceae.

QUALITIES

- **Stabilizer**
- **Acidizing Aid**

USES

- **Pharmaceutical**
- **Cosmetic**
- **Food**
- **Industrial**

SOURCE & PROCESSING

Gum Ghatti is a water-soluble complex polysaccharide exuded from the bark of the tree Anogeissus latifolia of the family Combretaceae. The tree is quite large and found in large numbers in the dry, deciduous forests of India and Ceylon. The crude gum has a glossy fracture and occurs in rounded tears, which are normally less than 1 cm. in diameter. It also occurs in larger vermiform masses. The color of the gum exudates varies from off white to dark brown. The lighter the color, the better the quality. Since Ghatti and Karaya are found in the same geographic areas, the harvesting and grading are similar. The best crops are picked when the monsoon is not occurring, and the largest crop is harvested in April. After picking the gum, it is dried in the sun for several days before being taken to the exporters in Bombay. It is then hand sorted according to color and impurities into various grades before being exported to the United States.

Colony Gum's strict standards regarding color and impurities are applied to every batch purchased for our mills. After approval, the exudate is pulverized to a fine mesh powder. Sifting, aspiration and density-table separation are used during this powdering to remove impurities. Normally, Colony Gums imports three grades of Ghatti. Number 1 grade is off-white to buff; number 2 grade is light amber to brown, and number 3 grade is dark brown.

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

PROPERTIES

Physical
Gum Ghatti is almost odorless and has a bland taste. The commercial powder is 140 mesh and varies from buff to dark brown. The lightest color has the least impurities and the greatest effectiveness in most applications.

Solubility
Gum Ghatti is 80 to 90% soluble in water and can be dispersed in hot or cold water to form a colloidal sol. Ghatti dispersions are not affected by small amounts of acid or alkali since the gum acts as a buffer and reverts to its normal pH of about 4.8. The finer the particle size of the powdered gum, the faster the gum will swell and reach its maximum viscosity. If the gum is coarser than 150 mesh, the sols will be grainy and will require a longer time to reach maximum viscosity due to the individual gum particles swelling, but still maintaining their individual particles. Gum Ghatti will not form a true gel. Dry films are relatively soluble and brittle. Ghatti has good emulsifying properties.

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USES

Pharmaceuticals and Cosmetics
In the United States, Ghattis is used to prepare stable, powdered, oil-soluble vitamins as well as a stabilizer in oil-in-water emulsions.

Foods
Ghatti stabilizes butter-containing table syrups. It is used at about 0.4% in combination with 0.08% lecithin. Ghatti modifies the refractive index of table syrup until the syrup becomes clear.

Industrial
Powdered Ghatti is used in ammonium nitratesemigelatin mixtures, and powdered explosives to improve their resistance to water damage. This allows the explosive cartridge to be submerged in water. The gum absorbs any water seeping in the cartridge and forms a surface protection for the interior explosive so that its detonation sensitivity is not impaired. Ghatti is used in varnishes and emulsifying oils, such as 40% kerosene oil. It acts as a stabilizer in auto polishes and wallpaper gum sizings. Ghatti has been used with polyacrylamide to aid in the polymerization and formation of uniform and discrete prills of cross-linked polystyrene. Gum Ghatti prevents fluid loss in oil well drilling muds when used at low concentrations in neutral mixtures, and in high salt concentration. It also prevents fluid loss at elevated temperature. It is used in the acidizing of oil wells in combination with a water-insoluble nonaqueous liquid that is inert to both the gum and acid. Ghatti also finds application in emulsification of petroleum and non-petroleum waxes to form liquid and wax paste emulsions.

Viscosity

At 3–5% gum concentration, a highly viscous (100 to 500 cps.) dispersion of uniform smoothness and texture results. The dispersions are non-Newtonian, as is true of most water-soluble gums, and their viscosity increases geometrically with concentration. The viscosity is greater than Arabic, but less than Karaya. Viscosity is a function of pH. It is highest at pH 8: however it is quite stable from pH 3 to 11.

Chemical Characteristics

Gum Ghatti is a calcium-magnesium salt composed of L-arabinose, D-galactose, D-mannose, D-xylose, and D-glucuronic acid in a molar ration of 10: 6:2:1:2 and less than 1% of 6-deoxyhexose. The molecules may have an overall rod shape in solution. Crude Ghatti has between 0.9–15% total impurities. 1.4-10.0% total ash, and 0.02–5.8% acid-insoluble ash. Moisture content varies from 12 to 15%.

Compatibility

Ghatti is compatible with other plant hydrocolloids as well as carbohydrates, most proteins and some fats. Viscosity loss is noted below pH 3 and above pH11. A higher apparent viscosity is observed in an aqueous Ghatti dispersion containing 25% ethanol.

Preservative

The gum is similar to other hydrocolloids that are subject to bacterial attack. Methyl and proply parahydroxybenzoate at a maximum of 0.15% and 0.02% concentration respectively are effective preservatives. Glycerin and propylene glycol may also be used. and will adapt to most food systems. A Carrageenan gel will start losing some of its strength at pH below 4–5 and above 10.

Established in 1938.
Three generations of excellence in service, innovation and quality.

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