



**MEGHA**  
INDUSTRIES

ISO 9001-2008 Certified Company

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**MANUFACTURES & EXPORTERS OF**  
TEXTILE PRINTING THICKENER DYES & AUXILIARIES

## **COMPANY HISTORY / INTRODUCTION:**

Megha Industries was founded in 1988 by Raxesh Satia - A first generation entrepreneur. It is privately held organization, which is engaged in manufacturing and marketing of products meant for Textile, Petroleum, and Food industry. The products include Binding / Thickening Agents, Guar Gum and its Derivatives, Tamarind Gum and its derivatives, adhesive solutions and other textile auxiliaries.

Governed by our Mission, Vision and Value statements and continuous quality improvement programs today, we have been able to penetrate and establish ourselves as a leading Quality Product Manufacturer and Supplier in the International market. We supply our products to many multinational companies worldwide.

## **PRODUCT BACKGROUND:**

Guar Gum is a natural hydrocolloid. It is the reserved polysaccharides of the endosperm of the seed of the Guar Plant. It is primarily the ground endosperm of guar beans. The guar seeds are dehusked, milled and screened to obtain the Guar Gum. It is typically produced as a free-flowing, pale, off-white colored, coarse to fine ground powder. The final purified product is obtained by separating the individual seed constituents like:

- ❑ Husk (Outer Shell)
- ❑ Germ
- ❑ Endosperm

Different physical and mechanical pre and after treatments determine the quality and purity of the commercial product, that is normally milled to a flour – like fineness. Chemically Guar Gum is a Galacto Mannan with a very specific macro-molecular configuration.  $\alpha$  1.6 bound Galactose unit forming a side branch on every second mannose unite. This characteristic macro-molecular structure, which to a certain extent represents an intermediate state between a sphero-colloid (e.g. Amylopectine) and a pure linear colloid (e.g. Cellulose) is responsible for the specific colloidal properties and the multiple end uses of Guar Gum.

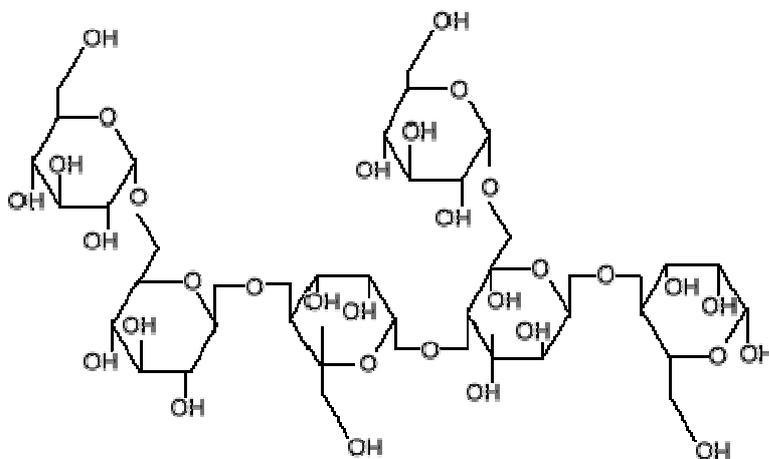
The guar plant, also known as a cluster plant, grows primarily in Pakistan and the northern regions of India. It thrives on the drought / monsoon cycles present in those areas. The plants are harvested after the monsoon season and the seeds are allowed to dry in the sun. The seeds are then manually or mechanically separated and processed into flour or sold as split seeds.

The Guar legume Plant is extremely drought resistant and thrives in semi arid regions where most plants perish. Guar grows best in sandy soils, areas of West, North West India and Parts of Pakistan are the ideal places for its farming. However with the latest technologies in the agriculture, it is now a – days grown in the many states of India.

Jodhpur City in the north western state of Rajasthan in India is the most important and ideal processing center for Guar Gum and contributes about 40 % of the worlds' Guar Gum supply. The guar plant '*Cyamopsis Tetragonolobus*' is an annual plant. The legume is an important source of nutrition to animals and humans.

Guar requires reasonably warm weather and a growing season of 14 – 16 weeks. It needs moderate intermittent rainfall with lot of sunshine. Too much precipitation can cause the plant to become more leafy thereby reducing the number of pods and / or the number of seeds per pod which affects the size and yield of seeds. The crop is generally sown after the monsoon rainfall in July / early August and is harvested in late October / November. The guar is natural rain fed crop and the total size of guar crop varies from year to year depending upon the monsoon rainfall.

### Chemical Formula:



## Properties:

The Guar Gum Powder is manufactured by using latest processing techniques. It is an almost colorless amorphous powder, dispersible in cold and hot water to form a nearly clear colloidal solution. Guar Gum Powder is commonly used for food and industrial applications throughout the world. The main properties of Guar Gum powder are as under :



- It is soluble in hot & cold water but insoluble in most organic solvents.
- It has strong Hydrogen bonding properties.
- It has excellent thickening, emulsion, stabilizing and film forming properties.
- At very low concentration, Guar Gum has excellent settling (Flocculation) properties and it acts as a filter aid.
- It is non ionic and maintains a constant high viscosity over a broad range of pH.
- It is compatible with a variety of inorganic and organic substances including certain dyes and various constituents of food.
- The viscosity of Guar Gum solution increase gradually with increasing concentration of Guar Gum in water.
- The viscosity of Guar Gum is influenced by temperature, pH, presence of salts and other solids.
- It has excellent ability to control rheology by economic water phase management.
- It forms highly viscous colloidal dispersions when hydrated in cold water. The time required for complete hydration in water and to achieve maximum viscosities depends on various factors i.e. the pH; temperature; grade of powder used; equipment etc.

On account of very specific properties, Guar Gum Powder is commercially used in food, Feeds & Pharmaceuticals industries. It is responsible for the texture as well as the physical effects in non food applications. Guar Gum Powder improves the quality of food. It has gained popularity over other gums and polysaccharides because of its increasing uses.

## Guar Derivatives:

Like most polysaccharides, Guar Gum consists of two or three Hydroxyl groups respectively per each Galactose / Mannose building block, which are available for substitution and etherifying reaction, which is well known in Cellulose and Starch chemistry. It is possible to reduce the length and size of the macro-molecules by enzymatic, oxidative, hydrolytic or thermal chain splitting techniques so as to adjust the viscosity and rheological properties of the solution to suit exactly to the particular requirements of given application. These chemical modifications allow a further variation of the properties of Guar Gum.

### **Applications:**

Guar Gum Powder modifies the behaviour of water in food systems in a highly efficient manner. It reduces and minimizes friction in food products, there by aiding processing and palatability of food. Our Guar Gum powder at equivalent solids in water has the highest viscosity in comparison to other commercially available Guar Gums and hydrocolloids.

On account of various specific properties and cost effective ingredients, Guar Gum finds direct commercial applications in various food and non food industries.

#### **Applications in Food Industries:**

- Bread, Biscuit and other Baked Food
- Ice Cream, Sherbet, etc.
- Cheese
- Canned or Retorted Food of Fish and Meat
- Noodles and other Food Products
- Ham & Sausages
- Juices and Beverages
- Salad Dressings & Sausage
- Pet Food
- Jams and Jellies

#### **Industrial Applications:**

- Textile & Carpets
- Paper
- Mining & Flocculation
- Petroleum – Oils, Gas and other Deep Well Operations
- Explosives
- Water Treatment
- Cosmetics & Personal Care Products
- Pharmaceuticals
- Paints
- Tobacco
- Building and Construction Products
- Foundries and Ceramics
- Industrial cleaners and related formulations
- Agricultural formulations and applications

In Addition to above listed industries, it is also used in many other industries.

#### **Major Functions:**

- It prevents quick melt down and increases shelf life.
- It acts as the primary stabilizer in various frozen dairy and non dairy products.
- It contributes body or bite resistance to ice cream thereby improving eating quality.
- It prevents the formation of Ice Crystals in combination with other hydrochlorides.
- It increases over run and improves chewiness.
- It control Ice crystal size and ensures smooth texture in Ice Milk, Sherbet, Italian Ice and Quiescently frozen Ice pops.
- It improves dough due to excellent film properties.

### Production:

Guar Gum is extracted from the guar bean, where it acts as a food and water store. The guar bean is principally grown in India and Pakistan, with smaller crops grown in the U.S., Australia, China, and Africa. The drought-resistant Guar bean can be eaten as a green bean, fed to cattle, or used in green manure.

We produce de-polymerized Guar product of various percentage range for different printing techniques. Our de-polymerized Guar range is as follows:

Product	% Stock Paste (in cold water)	pH	Viscosity at 25°C (after 2 hours)
GG - 3	3.0	7.0 to 7.75	15000 - 20000
GG - 5	5.0	7.0 to 7.75	20000 - 25000
GG - 6	6.0	7.0 to 7.75	35000 - 40000
GG - 8	8.0	7.0 to 7.75	35000 - 40000
GG - 10	10.0	7.0 to 7.75	35000 - 40000
GG - 12	12.0	7.0 to 7.75	35000 - 40000

**N.B.: Viscosity is measured by Brookfield Viscometer RVDV1 by Spindle No. 6 RPM 20**

Our Tamarind Gum range is as follows:

Product	% Stock Paste (in cold water)	pH	Viscosity at 25°C (after 2 hours)
CMT - 8	8.0	9.0 to 10.0	35000 - 40000

### Plant and Machinery :

1)	Mixer
2)	Grinder
3)	Ultra Fine
4)	Siever
5)	Blenders
6)	Flakers
7)	Roasters
8)	Boiler
9)	Dryer

### Location :

Our New plant will locate in the suburbs of Ahmedabad city in "Devraj Industrial Park". It is absolutely pollution free zone with very nice basic infrastructure facility about 10 km from the heart of the city.