# Various other Hydrocolloids

## Tamarind Gum

Tamarind Gum, also known as Tamarind Kernel Powder (TKP) is extracted from the seeds of the Tamarind Tree, Tamarindus indica. The Tamarind tree grows mainly in South India, parts of Bangladesh, Myanmar, Sri Lanka and Thailand. India is however, by far, the largest producer of Tamarind Gum.

The Tamarind tree is a large evergreen and grows to a height of 4 to 6 metres and bears fruit after 12 - 13 years. The seeds are contained in a pod, about 10 - 15 cms long. The pods contain about 55% pulp, 34% seed and 11% shell and fiber. The pulp is used as a food ingredient. The seeds are about 1.6 cms long, about 1.2 - 1.6 cms in width and about 0.7 cms thick.

The seeds are processed in to gum by seed selection, seed coat removal, separation, hammer milling, grinding and sieving. Tamarind gum is a polysachharide composed of glucosyl : xylosyl : galactosyl in the ratio of 3:2:1

Tamarind gum is hot water soluble. It requires heating to fully solubilise. Tamarind gums are non Newtonian and yield higher viscosities than most starches at equivalent concentrations.

Tamarind gum is mostly used after modification / derivation in textile printing applications as a thickener of dye pastes. Some Tamarind gum is also used a sizing agent and highly purified Tamarind gum is used as a food additive in some Asian countries.

The following types of Tamarind Gum are available:

•Straight Tamarind Gum.
•Depolymerised Tamarind Gum.
•Carboxymethyl (Anionic) Tamarind Gum (CMT).
•Hydroxypropyl (Nonionic) Tamarind Gum (HPT).

## Cassia Gum

Cassia gum is manufactured from the endosperm of Senna obtusifolia (also called Cassia obtusifolia or Cassia Tora). It is mainly used as a thickener and gelling agent in foods and pet foods. Cassia grows mainly in subtropical regions and is grows mostly wild and occasionally cultivated.

Cassia Gum is comprised of at least 75% polysaccharide consisting primarily of a linear backbone chain of mannose with side galactose units The ratio of Mannose : Galactose is about 5 : 1.

Cassia gum is hot water soluble and requires heating to fully solubilise and reach full viscosity in aqueous solutions.

Cassia gum, like LBG can form gels with other colloids like Carrageenan and Xanthan and is therefore used in the manufacture of gels in the food and pet food applications in combination of other colloids.

Cassia Gum is approved for use in Europe in food and pet foods.

## Locust Bean Gum (LBG)

Locust Bean Gum (LBG) (also known as Carob Gum) is obtained form the refined endosperm of seeds from the carob tree Ceretonia Siliqua L.

It is an evergreen tree of the legume family. It grows mainly around the Mediterranean, specially in Spain, Italy, Cyprus, Morocco and Turkey. The tree grows to about 9 mtrs high and is sensitive to very low temperatures. It can take about 10 years before a carob tree starts bearing fruit in commercial quantities. The tree bears fruit in January / February, fruiting starts in April / May and the pods are ready by about September / October.

The seeds are contained in a dark brown pod. After the pods are kibbled (mechanically broken), the seeds are removed. The pods are rich in sugars and proteins and used as animal feed or made in to carob powder which is used as a cocoa substitute.

The seeds are dehusked to remove the outer brown coat and the endosperm is separated from the germ by a mechanical process. The endosperm is then ground using various techniques to make powdered Locust Bean Gum.

LBG is a galactomannan polysaccharide with a mannose backbone and side units of galactose. The ratio of mannose : galactose is about 4 : 1. The approximate molecular weight is 300,000 - 360,000. LBG is hot water soluble and heating is necessary to completely solubilise the gum.

**Carboxymethyl Cellulose**
See our **Luctocel™** Data Sheet.

**Xanthan Gum**
See our **Xanoluc™** Data Sheet.

**Carrageenan**
See our **Carraluc™** Data Sheet.

**Pectin**
See our **Pectoluc™** Data Sheet.