

## Applications of Tapioca Starch as a Prime Raw Material

**Flavoring Agent** The chemical terms for the flavoring agent in food is called Monosodium Glutamate. MSG industry is utilizing 20% of the total tapioca starch production. Tapioca starch or molasses (by-product of the sugar industry) or the mixture of both are the major raw materials used in the manufacture of MSG. Then, the starch is hydrolyzed into glucose by adding amylase and amyloglucosidase enzymes. Next, add microbiological bacteria called micrococcus glutamicus or brevibacterium spp. together with other supplements like urea to convert glucose into glutamic acid by bacterial fermentation. The resulting glutamic acid is treated with caustic soda to produce monosodium glutamate which is then centrifuged and dried in drum driers. The finished product is the flavoring agent called MSG.

### High Fructose Syrup 42% (HFS 42)

High Fructose Syrup sweetens and is soluble more quickly than sugar so it can stay fresh all the time. It becomes sweeter at lower temperature or high concentration, or when used in combination with other sweeteners. It's less sweet than sugar with the proportion of 0.8-0.9: 1. However, it can be directly fermented whereas sugar must be treated through the process of hydrolysis into single molecules. Additionally, it is acid-resistant.

70,000 - 80,000 tons of cassava roots containing around 20% starch can be used to produce 15,000 tons of HFS 42. In other words, in producing 1 ton of high fructose syrup, 1 ton of tapioca starch, equivalent to 5 tons of cassava roots, are utilized.

### Applications of HFS 42

Today, HFS 42 is applied in various types of industries, for instance, beverage, bakery, dairy products, confectionery (assorted toffee), instant food (meat, seafood, sauce & seasoning and prickles) and canned fruit industries.

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