Chewing Gum Technology — Flavors and Textures

Chewing gum base is a blend of five components. Its formulation determines a gum’s texture, flavor release and longevity of flavor.

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Chewing gum is different from other confections because it contains gum base, which is the insoluble rubbery mass, called a cud or bolus, that remains in the mouth. Historically, people have chewed various insoluble materials for cops to cleanse the mouth and teeth and to abate thirst. Traditionally, these were extrudates from trees or shrubs, things such as mastic gum and spruce gum. As these materials were commercialized, paraffin waxes were included in the mix.

Coagulated tree sap from the chicle tree was chewed in the Yucatan region of Mexico and introduced to the United States in 1869 by a chance meeting between an exiled Mexican general, Antonio Lopez de Santa Anna, and an ex-Civil War photographer from New York, Thomas Adams Sr. Chicle proved to be a huge innovation to the chewing gum market, then composed of spruce gums and paraffin wax gums. Sugar and flavorings were incorporated to boost acceptance and digestive aids such as pepsin were added to entice more consumption.

Chicle soon became expensive and in short supply. Chemists such as Dr. Louis A. Dreyfus looked at other lattices to replace chicle. Gum base formulations became trade secrets and economically important to the industry. After the Second World War, in 1946, the Mexican government nationalized the chicle industry, drove the price of chicle up and limited supplies. Fortunately, chewing gum manufacturers had conducted research during the war on the use of synthetic materials for gum base. The most promising of these were the polymers of vinyl acetate and isobutylene, the copolymer of isobutylene and isoprene, and the copolymer of styrene and butadiene.

GUM BASE COMPONENTS

Today’s chewing gum bases are blends of five types of materials. These are elastomeric polymers, plasticizers, softeners, texturizers...