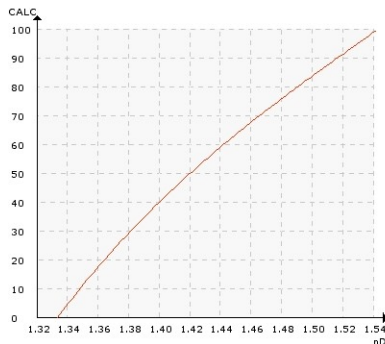


HONEY

Typical end products

Different honey products such as liquid, cut comb and creamed honey.

Chemical curve: R.I. per BRIX at Ref. Temp. of 20°C



Introduction

Honey is a syrupy biological product produced by honeybees from the nectar of flowers. It contains glucose, fructose and water, in addition to small quantities of proteins, minerals, organic acids and vitamins. However, its exact composition and color depends on the type of flower that supplies the nectar.

Honey is consumed in every country in the world in some form. It is mostly used as a sweetener for drinks or in the preparation of foods, but also as a medicine and health product.

Application

Honey is extracted from the honeycombs, poured into drums and taken to the commercial distributor for its processing.

The main steps in honey processing are filtration and heating. Honey is firstly poured into a tank and pre-heated to 49 °C (120 °F) to melt out possible crystals and to reduce its viscosity for easier processing. A filtration step follows to separate the pollens, beeswax and all other visible impurities.

After all suspended particles are separated, the honey is heated, usually in an evaporator. Thermal processing eliminates the microorganisms responsible for spoilage and reduces the moisture content to a level that retards the fermentation process. The final moisture content is usually between 17-18.5 % (81.5-83 % honey). However, the chances of crystallization will increase as the moisture content is reduced, so it is important to monitor carefully the concentration of the treated honey.

After thermal treatment, the honey is cooled and stored until it is filled in its final container.

Instrumentation and installation


The K-Patents Sanitary Process Refractometer PR-43-AC is installed after the evaporator or heater to measure in real-time the concentration of the honey.

Honey contains a sugar-tolerant yeast which will ferment if the moisture content is too high (above 20 %), thus giving the honey a foul taste. On the other hand, if the moisture content is too low the honey may start to crystallize. The refractometer is installed in-line to provide continuous and accurate measurements of the Brix concentration, thus ensuring the final moisture content in the honey is within the safe level.

Some distributors may blend the processed honey with unprocessed honey to adjust the moisture content to the required level. In these cases, another refractometer can be installed to control the ratio of the components to achieve the right concentration.

The K-Patents PR-43-AC has been designed to comply with all the strict regulations for safe food and beverage production. The refractometer is available with 3-A Sanitary and EHEDG certifications.

Concentrations measurement in honey processing with the K-Patents refractometer guarantees a product of high-quality, which is safe for long-term storage.

Instrumentation	Description
	K-Patents Sanitary Compact Refractometer PR-43-AC for hygienic installations in small pipe line sizes of 2.5 inch and smaller. The PR-43-AC refractometer is installed in the pipe bend. It is angle mounted on the outer corner of the pipe bend directly, or by a flow cell using a 3A Sanitary clamp, I-clamp or Varinline® connection.
User Interface	Selectable multichannel MI, compact CI or a web-based WI user interface options allow the user to select the most preferred way to access and use the refractometer measurement and diagnostics data.
Measurement range	Refractive Index (nD) 1.3200 – 1.5300, corresponding to 0-100 Brix.