**SUGAR SYRUP**

### Typical end products
Pillow-shaped chewing gum, other sugar coated confectionery products.

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

![Chemical curve graph]

### Introduction
Confectionery coating plays a decisive role in the final product’s appearance and functionality. Fine coating has an effect on the flavor and the quality of confectionery products, such as chewing gum. Moreover, if applied unevenly the coating can result in inconsistencies in the chewing gum pad sizes, thus, causing packaging problems.

### Application
Preparation of syrup for chewing gum coating starts with adding the syrup components, in particular, sugar or its substitutes, e.g. maltose, and water to the mixing tank. The exact syrup concentration is critical for securing the correct flavor and to prevent the gum pads sticking together in the coating machine (drum).

Chewing gum is pillow-shaped when fed to the coating machine. The briquetted gum is then sprayed with the sugar syrup. The mixing process takes about 5 hours. During this time, up to 40 microthin sweetener layers are applied step-by-step to the chewing gum pads to produce a crunchy coating. For instance, over 100,000 pieces of coated briquetted gum can be produced from a 200 kg batch.

The concentration of the sugar syrup must be carefully monitored. If the syrup is out-of-specification, it may result in the gums getting sticky and the whole batch being spoiled. This may also cause drum damage.

After the chewing gum has been coated, it proceeds for packing.

### Instrumentation and installation
The K-Patents Sanitary Refractometer PR-43-AC is used to measure the concentration of the sugar syrup upstream before it is sprayed to the gum for coating. The installation of the refractometer assures an efficient chewing gum manufacturing process and prevents the risk of defective batches.

Typical installation is the elbow flow cell installation on the recycling pipe.

The K-Patents refractometer is available with 3-A Sanitary and EHEDG certifications. Brix monitoring with the K-Patents refractometer allows for continuous and real-time quality control of the manufacturing process.
## Instrumentation Description

The K-Patents Sanitary Compact Refractometer PR-43-AC is designed 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.