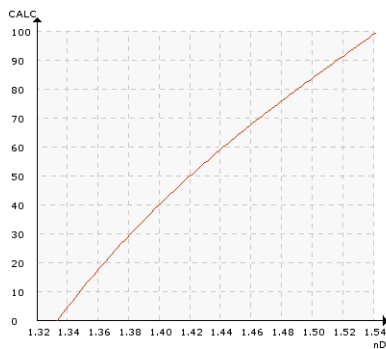


## INSTANT COFFEE, INSTANT TEA

### Typical end products

Instant coffee, tea extract, instant tea

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



## Introduction

Instant coffee and tea beverages are produced by using extractions from coffee beans or tea leaves.

## Application

Instant coffee is manufactured by using a coffee extraction process. In the extraction, the coffee beans are boiled in water. The coffee extract is evaporated and dried by spray drying. The coffee dust, which passes through a filter, is dissolved in

steam and the recovered liquid coffee extract is returned to the process.

Tea leaves go through the same process as coffee beans: extraction, concentration and spray drying. The most difficult part in the instant tea process is aroma preservation.


## Installation

The K-Patents Sanitary Refractometer PR-23-AC is used to measure extraction efficiency. Typical measurement range is 0-30 Brix and the normal process temperature is 5°C (41°F).

The evaporation is a triple stage process, with stage concentrations of 10-20% dry solids, 15-30% dry solids and 35-65% dry solids. Under normal circumstances the process temperature is 52-82°C (126-180°F).

The K-Patents refractometer is also used to measure the concentration of recovered instant coffee dust after filtration. Typical measurement range is 8-20 Brix and the normal process temperature is 75-85°C (167-185°F).

A prism cleaning system, using steam in the evaporator outlet and high pressure hot water in the extraction, is recommended.

<b>Instrumentation</b>	<b>Description</b>
	<p>K-Patents Sanitary Compact Refractometer PR-23-AC for small pipe line sizes of 2.5 inch and smaller.</p> <p>The PR-23-AC sensor 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 or Varivent® connection.</p>
Automatic prism wash:	<p>Prism wash with steam: The components of a steam wash system are a sensor with integral steam nozzle mounted at the sensor head, a shut-off valve for steam line and an indicating transmitter equipped with relays to drive the wash valves.</p> <p>Prism wash with high pressure water: The components of a high pressure water system are a sensor with integral water nozzle mounted at the sensor head, a high pressure pump together with a power relay unit and an indicating transmitter equipped with relays.</p>
Measurement range:	Refractive Index (nD) 1.3200 – 1.5300, corresponding to 0-100 Brix.