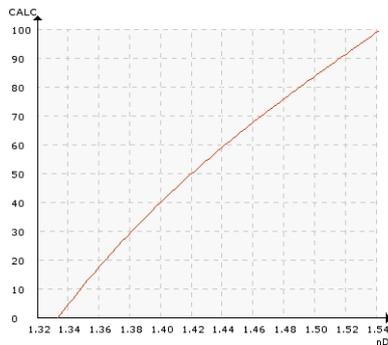


## EGG

### Typical end products

Egg white, egg yolk, whole egg, egg powder

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



## Introduction

The egg processing operation separates eggs into different kinds of egg products: egg white, egg yolk, whole egg and several mixes i.e. by adding sugar or salt. The pasteurized liquid egg is either packed as a final product or, in case of egg powder production, it goes via pipelines into a spray dryer plant.

Before releasing the final product, it is very important to measure and verify the final concentration of the egg product. This enables the supplier to assure customers that the products coming out of the processing plant meet the stringent specifications.

Strict hygiene control is essential to ensure there is no contamination of the products throughout the production process. During the egg refining process the mass is tested several times to insure that all the products are clean. When the product is ready, a

temperature of 4°C (39°F) is required for storage, except for the yolk when the requirement is 12°C (54°F).

## Application

The eggs are fed in to a cracker/separator, where each egg has its own cup. Then, the egg shells are cut and the egg white flows off the cup while the yolk stays in. Usually there is a separate pipe for each product, leading to separate open tanks.

The egg white, the yolk and the whole egg go through a screen before they are floated into their own containers or mixing tanks. They are screened to remove all unwanted particles. When the product is a mixture, the additives are introduced into the mixing tank.

The next phase is pasteurization. The mass is preheated through a heat exchanger before pasteurization. The yolk is pasteurized at 60°C (140°F) and the temperature for egg white pasteurization is 57°C (135°F). When the mass leaves the pasteurization, it is cooled by utilising the same heat exchanger, which it passed through before entering the pasteurization tank.

The pasteurized mass is collected into product tanks while awaiting packaging. If the level of dry solids for the whole egg mass is not high enough, egg yolk can be added to increase the dry solids to the specified level before packaging.

<b>FOOD AND BEVERAGE</b>	
<b>APPLICATION NOTE</b>	<b>2.07.00</b>
<b>EGG PROCESSING</b>	

## Installation

There are several stages in this process, when the Refractive Index measurement is needed. The most common are the ones after the mixing tank in the pipe line or optionally directly in the final product mixing tank prior to packaging.

The dry solids content of the yolk, egg white and whole egg are measured before and after pasteurization. Typical dry solids content of a whole egg is 26.2 before pasteurization and 26.0-26.5 after. With egg yolk the values are 45.0 and 43.0-44.5 respectively. For egg white 14.5-15.5 dry solids is a typical value after pasteurization.

The K-Patents Sanitary Refractometer PR-23-A has 3A Sanitary Standard approval for in-line cleanability for dairy, food and egg processing. Therefore it meets the stringent hygiene requirements for egg refining processes.

The PR-23-A has two important functions in egg processing: to replace periodical sampling of the water to dry solids interface and quality control measurements. Both of these speed up production and reduce wastage.

## Instrumentation



## Description

K-Patents Sanitary Compact Refractometer PR-23-AC for small pipe line sizes of 2.5 inch and smaller.

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.

Measurement range:

Refractive Index (nD) 1.3200 – 1.5300, corresponding to 0-100 Brix.