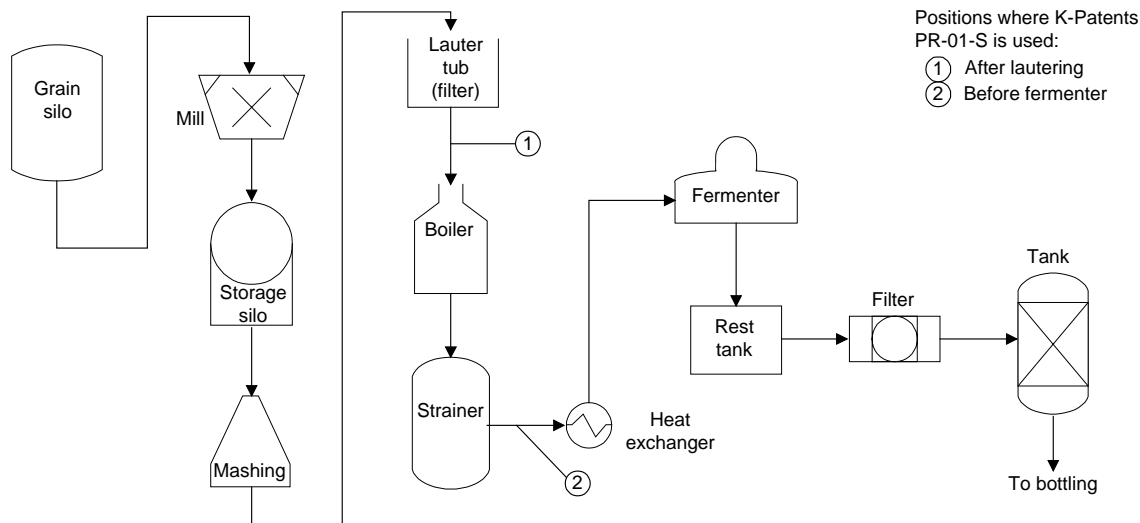
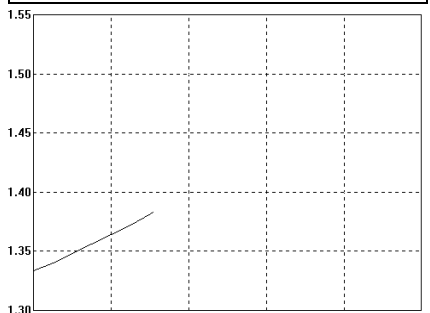


### Beer Brewing: Wort Measurement



#### Beer Wort

Chemical curve: R.I. per Conc% b.w.



R.I. Reference Temp. 20°C

See also

Beer Blending Process 2.03.01

#### Introduction

Beer production can be separated into three distinct stages. The first step is the preparation of malt and selected grains and is referred to as brewing. The extract received from these raw materials is called wort.

The second step is fermentation, where the liquid is converted into beer by means of yeast.

The final step is the finishing of the beer. It involves an ageing process and a final filtration.

#### Brewing

Grains, received by the brewery are milled and stored in silos.

The following process, called mashing determines the final structure of the beer. There are different mashing methods used. But they all have in common that the mash goes through a series of temperature rises. This allows complex reactions to take place. Amino acids have to be supplied for the growth of the yeast and large proteins have to be broken down.

The converted mash is then transferred to the lautering vessel which will permit separation of liquid wort from insoluble solids. When the wort runs clear, it is run to the kettle.

In the kettle the wort is boiled and hops are added. During this process the resins from the hops are extracted and all enzymatic reactions are stopped. The hop leaves are removed in a strainer.

Before fermentation takes place, the wort has to be cooled and aerated to provide oxygen for the yeast. The yeast metabolises sugars and amino acids and converts them into alcohol. After fermentation the beer is allowed to rest and settle the suspended yeast.

After a further filtration step the beer is ready for bottling.

#### Installation

K-Patents Process Refractometer, PR-01-S is used to measure the concentration of the wort before fermentation and after mashing. Prism cleaning is recommended in this application.

The digital sensing technology of K-Patents PR-01-S is not affected by undissolved components or intrapped air which is present in the product after mashing and before lautering. The control of the fermentation can be improved by K-Patents PR-01-S concentration measurement after the strainer.