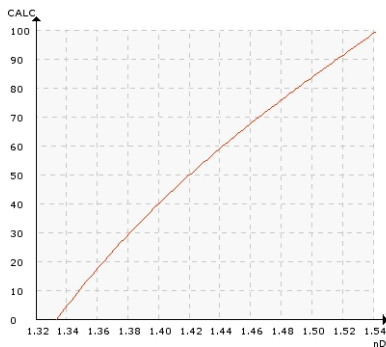


RUM

Typical end products

Rum

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



Introduction

Rum is a distilled beverage made from sugar cane by-products, such as molasses and sugar cane juice, by using fermentation and distillation. The distillate, a clear liquid, is usually aged in oak barrels or in similar devices.

Clarification of Molasses

Molasses is diluted with water and then recycled through a wash column. The mixture is then heated, and a flocculent is added to help unwanted inorganic

impurities settle as sludge in the clarifying tank. The clarified molasses is pasteurised in a heating process to destroy unwanted bacteria.

Fermentation

A yeast solution is added and mixed to the molasses in the fermentation tanks. Enzymes from the yeast convert sugar to ethanol and carbon dioxide in nearly equal proportions. Initially the solution contains about 16% sucrose, which drops to about 8% alcohol after 30 hours.

Stillhouse

The fermented mixture is pumped to the top of tall wash columns, which are special steam-heated distillation columns. Alcohol vapour is driven off at the top at about 50% by volume.

The condensed alcohol mixture is diluted with water in the low wine charger tank and fed in batches to pot stills, which are like large kettles where the liquid is heated. The produce, from the start and the end of the batch distillation process, is rejected to waste streams for reprocessing. The raw rum produced is at strength of about 78% alcohol.



FOOD AND BEVERAGE	
APPLICATION NOTE	2.01.01
RUM DISTILLATION PROCESS	

The Maturation Vats

From the raw rum receiver, the clear water liquid is transferred to maturing vats, where it gradually converts from raw alcohol to smooth rum. During maturing, the color is adjusted by carefully adding controlled amounts of special alcohol caramel. After maturing, the rum is diluted from storage strength to differing bottling strengths.

Installation

The K-Patents Process Refractometer is used for measuring and controlling the molasses dilution, with dunder and water with strength of around 47 Brix. The K-Patents refractometers are also used to monitor and control the feed to the fermenters at about 28 Brix.

Instrumentation	Description
	<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>
	<p>K-Patents Sanitary Probe Refractometer PR-23-AP for installations in large pipes, tanks, cookers, crystallizers and kettles, and for higher temperatures up to 150°C (300 °F). Installation through a 3A Sanitary clamp.</p>
<p>Measurement range:</p>	<p>Refractive Index (nD) 1.3200 – 1.5300, corresponding to 0-100 Brix.</p>