TOMATO KETCHUP AND SAUCES

Typical end products
Tomato ketchup, tomato sauce.

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

Introduction

Tomato ketchup/sauce is one of the most common used condiments. The recipe, viscosity and solids content of sauces and ketchups vary widely. Typically, they are made from tomato concentrate, but the recipe can be based on whole peeled tomatoes.

Ketchup and tomato sauce also contain water, sugar, vinegar, salt and seasoning. A starch-based thickener is also added to achieve the desired product viscosity.

Application

The ketchup manufacturer utilizes tomato paste or puree from a tomato concentrator. In the mixing tank the product is then diluted with water to the desired Brix. After that, some sugar or sweetener, salt and preservatives are added to the mixture according to the recipe.

After the tomato paste has been diluted and mixed with other ingredients it proceeds to sterilization and de-aeration. The ketchup must be de-aerated to prevent discoloration and growth of bacteria. Once mixed, the product may be passed through a high-pressure homogenizer or colloid mill to obtain the required consistency.

Ketchup is then kept in the holding tank to be further packed in containers, glass bottles or pouch packs.

During the ketchup preparation process it is very important to continuously monitor and control the concentration of the product, as it affects the consistency of the ketchup.

Instrumentation and installation

The K-Patents Sanitary Refractometer PR-43-A is installed at three locations:

1. In the mixing/dilution tank. The refractometer ensures a constant Brix-value of tomato paste, as the paste from different suppliers may differ in concentration.

2. In-line to final product holding tank. After the sterilization and de-aeration processes the concentration of the ketchup may vary. The refractometer provides the final quality control measurement before storing the ketchup in a holding tank.

3. In the filling line. The refractometer measures the concentration of the end product before bottling.
The K-Patents refractometer provides constant quality control over the entire process, and assures high quality of the end product. The refractometer is available with 3-A Sanitary and EHEDG certifications. The instrument design withstands CIP- and SIP-cleaning.

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<tr>
<th>Instrumentation</th>
<th>Description</th>
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<tr>
<td>K-Patents Sanitary Compact Refractometer PR-43-AC</td>
<td>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.</td>
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| 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. |

The K-Patents PR-43-A refractometer meets the demands of National Regulations aiming at Safety of Food Contact Materials. Moreover, all K-Patents’ products fulfil the material traceability requirements of the food industry.