

Hard Tests for Soft Drinks

At Coca-Cola's production site in Liederbach near Frankfurt am Main in Germany, **titrators** from Schott help the company fulfill its taste requirements.

► In the laboratories at the production site of Rhein-Main Sieg Getränke GmbH & Co. KG, the Coca-Cola concessionaire in Liederbach near Frankfurt, the quality assurance team is entrusted with the highly important task of preserving the decisive brand advantage of the famous soft drink: its unique taste.

Before the one million liters of soft drink leave the five bottling facilities every day, experts regularly check throughout the entire production process whether the concentrations of the various soft drink ingredients are within the prescribed limits. This procedure ensures the quality of Coca-Cola's unique taste.

The refreshing taste is popular

Citric acid is an important flavor enhancer for the taste. "It is responsible for the refreshing taste and also has a preserving effect," explains Ines Reichert, Head of Quality Assurance in Liederbach. One of the most exact and fastest methods to determine the citric acid content is titration. The Coca-Cola laboratory in Liederbach has used titrators from Schott for more than 15 years.

Stefan Kaus, Sales Manager of Titration at Schott-Geräte, describes the various process steps as follows: "First, the carbonation is removed from the soft drink sample. The precisely measured sample is placed in the titrator, and then a pH-measuring electrode and the titration tip of the burette are lowered into the sample. The next step is to

choose the desired analysis method. Enough liquid reagent – in this case, a sodium hydroxide solution of a known concentration – is then added until a certain pH target value is reached. The citric acid content is automatically calculated based on the consumption of the sodium hydroxide solution.

Up to 30 titrations daily

The titrator currently used in the laboratory, the "TitroLine alpha," facilitates these electrochemical analyses because of several preset titration parameters, its high measuring precision and all its accessories. With the help of this device it is possible to perform an entire range of quantitative and repro-

ducible analyses of diluted, oily or solid foodstuffs. The results are documented on a display, on a PC monitor or on printouts.

The production facilities in Liederbach operate 24 hours a day, and the titrator analyzes some 30 samples at various phases of the production process. "We produce the starting material, the soft drink syrup, from the supplied soft drink concentrate, sugar and water. The titrator is even used to determine the concentration of this syrup," says Ines Reichert. The finished soft drink is also analyzed with this device. Analyses are performed on an hourly basis during the bottling operations, mainly with the "Light" versions of Coca-Cola, Coca-Cola caffeine free, Sprite and Fanta. "Since these soft drinks do not contain any sugar, their acid concentrations can only be determined by titration and not by any other measuring methods," explains Reichert.

Even after all these painstaking efforts, no room is left for surprises: Samples of the syrup and the finished soft drinks undergo additional sensorial tests performed by three highly qualified tasters. And although independent buyers of trade samples in Brussels pay careful attention to whether the correct recipe has been used and other parameters have been followed, what ultimately counts is preserving the special Coca-Cola experience: its characteristic refreshing taste. ◀



Like its forerunner, the "TitroLine alpha," the new automatic "TitroLine alpha plus" titrator is user friendly. But in addition to that, it is more efficient and offers more possibilities for combinations. It also has a wide spectrum of capabilities for a variety of applications in environmental protection, foodstuffs, electroplating, pharmaceuticals, chemicals and plastics.



Soft drinks are subject to constant quality control. Titrators are used as analytical equipment at the production facilities of Coca-Cola's concessionaire in Liederbach. They ensure a consistent taste quality with the help of precise measurements.



The soft drinks are analyzed at different phases of the production process in this laboratory.



Every day one million liters of soft drinks are bottled at the Rhein-Main Sieg Getränke GmbH & Co. KG.