Food and Beverage

Analytical Solutions in the Laboratory

17 News

Easy Sugar Determination

With Streamlined Sample Prep

Assessing the sugar content of beverages during quality control is a crucial step in production, yet sample preparation steps are often required when measuring carbonated drinks and juices with pulp. New solutions from METTLER TOLEDO allow quick and accurate Brix analyses with no need for preparation.

To comply with regulations, juice and soft-drink producers must monitor the concentration of sugar in their initial concentrates and final products. This is typically performed via Brix determination—a simple yet accurate analytical technique which by definition measures the concentration of 1 g of sucrose in 100 g of aqueous solution.

Rugged, reliable instruments are crucial to efficient quality control, especially near-line. METTLER TOLEDO offers simple and affordable new temperature-controlled refractometers, also known as Brix meters; this EasyPlus™ refractometer series comprises three compact and robust bench-top meters, the Easy Brix, Easy R40 and the Easy Bev, a vertical model. All are designed to accurately and automatically analyze different types of samples.

Sample measurement

For most beverage types, a small amount of sample is inserted into the instrument and Brix is measured directly. However, for

METTLER TOLEDO

juices not from concentrate or nectars, an intermediate step of filtering out the pulp is required; for carbonated soft drinks, sample preparation involves an additional degassing step. In contrast, the Easy Bev's vertical measuring cell and funnel allow sampling directly from the bottle, without risk of pulp sedimentation or air bubbles in the measuring cell.

A study conducted by METTLER TOLEDO specialists used an Easy Bev refractometer (Figure 1) to measure samples of cola, lemon and orange soda, and Indian tonic water containing CO_2 in two different conditions, degassed and non-degassed.

In either case, repeatability of measurements was good, as indicated by the low standard deviation (Figure 2); moreover, the difference between Brix results obtained with the two sample types falls within the limit of error of the instrument.

With its clever design, the Easy Bev offers its users efficient, accurate and precise Brix readings with only minimal sample preparation. And, whether in the lab or near-line, METTLER TOLEDO's EasyPlus refractometer series can be operated by anyone, lending its powerful technology to fast results, no specialist training required.

Text: Rafael Lima
Product Manager, Physical Values

▶ www.mt.com/EasyPlus-Refractometry

Figure 1. Sample preparation steps such as filtering and degassing can be avoided with the Easy Bev refractometer, while the Easy Brix and Easy R40 require low sample volumes. In each case, the instruments deliver results within seconds.

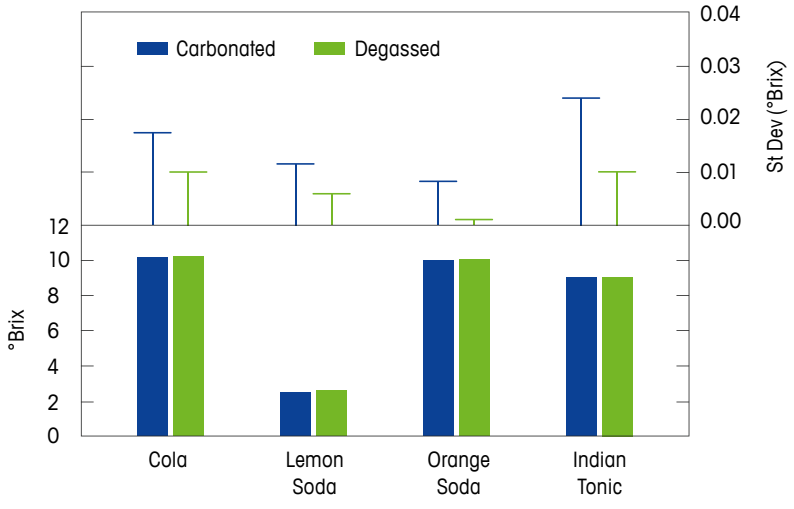

Figure 2. °Brix results and standard deviation comparison for the beverages analyzed. Results reflect 7 replicates for each sample.