

Beverage

Weighing and Analysis in the Laboratory



7 News

Simple and Efficient Quality Control With RE50

To supply the rapidly growing consumer market in China, production lines are operating all year round to meet demand. To cope with these increasing needs, Tianjin Tingjin Food Co., Ltd in China, has selected METTLER TOLEDO Refractometers to measure BRIX in their quality control lab.

BRIX Applications

Dingyi Beverage Co., Ltd., one of the subsidiaries of Dingxin Group, focuses on beverages such as black and green tea. BRIX is an important parameter in order to distinguish between the different types and quality of beverages. The control of BRIX is significant in beverage production, and is mainly carried out via a measurement of the refractive index. The BRIX function built into the METTLER TOLEDO Refractometer allows users to read BRIX values directly from the screen.

Simple and Efficient

There are 5 units of METTLER TOLEDO's RE50 digital Refractometer for measuring BRIX in the raw materials and finished products that pass through the quality

control lab of the group's branch factory in Tianjin. A built-in peltier thermostat in the instrument offers a superior testing result without the need of a circulating water bath for temperature adjustment. "The RE50 refractometer is so simple to use," says Ms. Zhao Fei, supervisor of IQC Lab in Tingjin. "We have many samples to test each day in order to control the quality of product. The operation of METTLER TOLEDO Refractometer is foolproof. It is very simple, tests samples quickly and is easy to maintain."

Unique CHECK function

"Many other instruments can perform quick tests with high repeatability. The reason why we chose the METTLER TOLEDO Refractometer, besides its speed, is the unique CHECK function which



METTLER TOLEDO



Dingyi Beverage Co., Ltd., in Tianjin, China.



Ms. Zhao Fei, Supervisor IQC Lab, performs tests with RE50



helps to reassure us of the result we get.” says Ms. Zhao Fei. Good repeatability does not necessarily mean accuracy of results. The CHECK function adopts standard samples for tests, and checks the current state of the instrument by comparing the measured result with standard value and error limits. If the result is within the error limits, it means the instrument is in normal working condition and can continue testing samples.

Besides using RE50 to test BRIX, the Dingxin Group also uses METTLER TOLEDO’S DL50 Titrator to measure chloride in food and a pH meter to measure the acidity of drinks. The Tianjin Tingjin Food Co., Ltd. trusts the quality of METTLER TOLEDO products, professional service and support.

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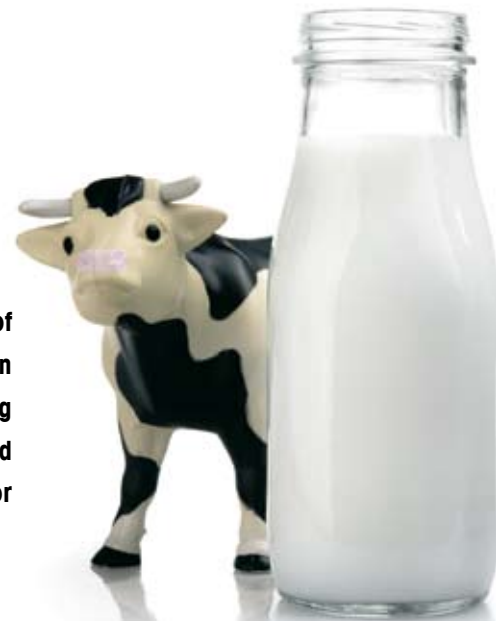
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- ▶ www.mt.com/density
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Fast Moisture Determination For Real Time Decisions

AMPI, a leading milk marketing cooperative located in the Midwest of the USA, owns one of the largest dry milk plants in the U.S. The Halogen Moisture Analyzer HR83 ensures consistent moisture control ensuring a quality product meeting specifications at all times. Ease of use and fast and reliable results make this robust instrument the ideal choice for production monitoring on the factory floor.



Monitoring the Quality of Milk Powder

Associated Milk Producers Inc. (AMPI) own 15 milk processing plants throughout the Midwest of the United States. The plant in Mason City, Iowa, is one of the largest milk powder producers in the U.S., focusing on private label products for renowned brands. During milk powder manufacturing, water is gently removed stepwise by evaporation and spray drying. The concentrated milk resulting from evaporation is sprayed as fine mist into a stream of hot air where the water evaporates almost instantly, leaving a fine powder containing less than 4% moisture. The quality and shelf life of milk powder

strongly depend on the moisture content. Loss of nutritive value and flavor, caking or lumping may occur if moisture levels do not match specifications. The moisture content is therefore strictly controlled during the production process.

HR83 Helps Control Production Costs

The Halogen Moisture Analyzer HR83 is used both within production and laboratory processes to optimize milk drying and ensure a consistent product quality. 3 g of milk powder are weighed in, the temperature is set to 110 °C and the analysis starts. The circular halogen lamp heats the powder rapidly and evenly, ensuring

highly reproducible results. After only 6-7 minutes the result is displayed. Production floor usage places high demands on the HR83, such as heat, dust and vibrations. Even under these challenging conditions, the results provided are reliable and fast. This allows the factory workers to take immediate measures if the parameters of the drying plant need to be adjusted, therefore, keeping product quality and production costs under full control. The periodic on-site maintenance and calibration service provided by METTLER TOLEDO is also fully appreciated as it ensures the faultless performance of the halogen and weighing technology in each environment.



► www.mt.com/HR83

HR83 Halogen Moisture Analyzer

Tradition Meets Quality Guaranteed by SQC-XP

SQC-XP, the application for Statistical Quality Control for XP analytical and precision balances, is used for monitoring, controlling and optimizing filling processes in order to comply with economic and legal requirements. METTLER TOLEDO's SQC software installed on XP6002S balance at Köstritzer Schwarzbierbrauerei, one of Germany's oldest breweries, contributes to maintaining more than 460 years of dark beer brewing tradition.



Filling line of Köstritzer dark beer.

Strict Control Guarantees Quality

The quality control laboratory at Köstritzer brewery, managed by Mrs. Wetzig, uses standard methods described in MEBAK* to analyze raw materials such as yeast, barley, malt, and the water originating from their own springs in Bad Köstritz. Chemical and biological tests are also conducted during the production process and on the final product. Rather demanding assays are performed, such as determination of the total carbohydrates in the case of dietary beer for example. Köstritzer has been DIN ISO 9001/2000 certified and guarantees the declared quality and content of the beer.



Checking the filling using SQC-XP.

Correct Filling with SQC-XP

Due to the variety of beer that Köstritzer produces, filling the correct volume of beer into each different beer bottle is a real challenge. Switching between different bottles should be fast and straightforward. The filling machines have to be fine-tuned to the declared volume before each new batch of beer can be bottled. Under-filling is illegal and overfilling results in financial losses.

The filling quantity is estimated optically by graduate template, whereas the SQC-XP is used for the final control. Once per month, 24 bottles from each kind of beer are taken randomly from the moving production band. By using a differential weighing application built into the balance, the beer content can be checked. The whole carousel from the production-

line (144 bottles) has to be systematically tested quarterly. Mrs. Neumann, technical assistant at Köstritzer, emphasized how easy the SQC-XP is to use once the system is configured (articles and parameters defined in the memory) and one can easily switch among testing different beverages with one touch. Statistics calculated from the emerging data

* MEBAK, abbreviation from Mitteleuropäische Brautechnische Analysenkommission (Central European Brewing Technology Analysis Committee)



Taking swap samples from the production line into the tube containing culture medium for microbiological control.



METTLER-TOLEDO's titrator is also used in QC lab at Köstritzer.

warn immediately of tolerance violation. All important information can be printed out by RS-P42 printer for documentation. All the warning messages are highlighted for easy reference.

SQC is also the optimal support for regulation compliance. It has several tolerance systems built into it, including the European tolerance system (directives 75/106/EEC and 76/211/EEC) used at Köstritzer. Batch and statistic reports can also be exported to PCs and retrieved at any time by using the backup/restore program.

The wide variety of Excellence Plus XP balances, ranging from analytical balances with 1µg resolution, to precision balances with weighing capacity up to 64 kg, support SQC software and are, therefore, applicable for various industries.

QUALITY is Written in Capitals at Köstritzer!

By employing a comprehensive array of monitoring, one can be sure that the Köstritzer beer that reaches the customer fulfils their every expectation.

The SQC-XP application can be installed on all XP precision and analytical balances. For more information on the XP precision and XP analytical balance go to:

- ▶ www.mt.com/xp-analytical
- ▶ www.mt.com/xp-precision

The Unique Beer Taste

A Matter of pH Measurement

Tsingtao Brewery Co. Ltd., founded in 1903, is one of the oldest and largest beer makers in China. Unique brewing techniques and strict quality management contribute to the world famous taste. The pH value must be monitored during various processing stages to ensure that the final product reaches the anticipated quality. METTLER TOLEDO's SevenEasy pH Meter together with InLab Electrode is their choice of choices.

The Secret Behind the Taste

“Tsingtao beer samples include cereal mash, fermented liquor, beer and buffer solution, etc. Our problem was that these samples have complicated physical and chemical characteristics with wide pH values ranging from acid to alkaline.

When switching from an acid to an alkaline sample measurement, we needed to recalibrate pH meters twice. As we handle large amounts of tests daily, it became necessary to improve the measurement output with accurate results and to be able to monitor the condition

of electrodes immediately in the case of a faulty measurement,” explains Mr. Hao Jinguang, the director of Tsingtao Beer inspection center.



Tsing Too Beer being tested.



Ms. Hong, QC Analyst, operating SevenEasy.

More than Simplicity

The features below offered by the SevenEasy pH Meter solve the problems that the customer encountered:

- The automatic buffer recognition function speeds up calibration and eliminates unnecessary errors with choices of 1-, 2- or 3- point calibration. There is no longer any need to recalibrate the meter between acidic and alkaline samples.

- The user can select automatic or manual endpoint modes according to different sample features. Automatic endpoint mode improves data repeatability and result accuracy.

- Electrode status indication helps the user judge when an electrode requires cleaning and replacement. Visual icons are intuitive and convenient.

Keeping with Tradition whilst Remaining Up-to-Date

Another issue was to cope with increasingly stringent regulation requirements. Ms. Tian Hong, a lab assistant at Tsingtao Beer's inspection center said, "we used to record results manually. Errors were not avoidable and it was not convenient to manage data in a manner that was also compliant to regulations.

SevenEasy pH Meter is equipped with an RS232 interface which means that all data can be printed out or stored in a PC for documentation. Detailed data analysis is comprehensive with LabX software. Furthermore, it can be easily connected to LIMS and LAN in order to share data globally.

Robust Electrodes for Different Needs

During the beer production, liquid samples have different characteristics at

different stages in fermentation: viscosity, turbidity and temperature vary. Ms. Hong explained that, "we used to have conventional electrodes which tended to yield unreliable results. The lifetime of the electrodes was also short due to the wide variety of samples tested."

The InLab Science professional electrode is the best choice for various applications. The unique glass adjustable liquid junction, ARGENTHAL™ reference system and silver ion trap structure prevent protein samples from contaminating and clogging the liquid junction, ensuring result measurement accuracy to the highest degree.

Tailored-Made Method Makes Measurement so Simple

Fast and precise results, simple and reliable methods, SevenEasy pH Meter plus InLab Science Electrodes have become the optimum pH measurement solution for the QC lab of Tsingtao Beer.

► www.mt.com/phlab

► www.mt.com/phlab_sensors

New Products and Technologies From METTLER TOLEDO

METTLER TOLEDO delivers powerful solutions that simplify work in laboratories around the world. Combining our state-of-the-art technologies with our applicative competence, we have a strong value proposition to make: accurate results and productivity second to none.

Weighing Solutions and Analytical Instruments

New ErgoClips & Stands

Available from 2009

We are proud to announce the expansion of our ErgoClips portfolio! The ErgoClip small flask, used for enhanced weighing directly into the 10ml volumetric flask, is now also available for analytical XS/XP balances. Please visit our website for ErgoClip filter holder to improve manual filter weighing process and new ErgoClip stands to prevent damage to ErgoClips and keep the bench space tidy.

► www.mt.com/excellence



LabX Balance Software Version 1.5

New: Inbuilt Job Templates and GWP® Support!

In this new version of LabX balance software, 25 ready-to-use job templates are integrated. It is even easier to get up and running with applications such as Moisture Content Determination, Filter Weighing, Standard Solutions, Density Determination and many more! Using the full on screen user guidance, on both balance and PC, LabX balance 1.5 also helps you work according to GWP® guidelines, making lab work easier and more efficient.

► www.mt.com/labx-balance



New Range of Laboratory Conductivity Sensors Easier Handling and More Precision

The entire range of laboratory conductivity sensors is replaced by the second generation of InLab® conductivity sensors. The robust sensors have a newly developed open tip design. Therefore, sample carryover is reduced to an absolute minimum. Cleaning and rinsing becomes easier. The linearity over the whole measuring range is maximized and the response time is shortened. All kinds of samples can be measured easily, including pure water.

► www.mt.com/inlabconductivity

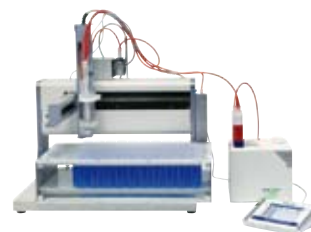


Sample Handler

Titrate High Beverage Sample Numbers Reliably

The Sample Handler and T70 or T90 Excellence titrator perfectly match to automatically titrate up to 80 x 80 ml or 42 x 100 ml beverage samples. Intelligent automation sequences minimize sample carryover due to sticky samples by effective rinsing procedures, which enable a secure, unattended operation. The Sample Handler PC software controls both instruments and offers an easy-to-use interface that simplifies daily routine work.

► www.mt.com/titration_automation



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For more information