

TOOLS & TECHNOLOGIES

By Keith Albertson



The Kett KB30 in-line NIR moisture meter system uses smart sensor design to measure moisture levels in products and processes quickly and accurately, helping to ensure product quality and maintain regulatory standards.



Photo courtesy of Kett

NIR meters monitor moisture in real time to ensure quality

One key function of industrial Internet of Things automation is to monitor the environment and maintain ideal conditions for product manufacturing. That includes measuring product and input moisture content in real time to maintain quality and meet regulatory standards. Moisture control is vital to ensure proper chemical reactions and drying, maximize shelf life and deter mold while tracking historical performance trends, cyclical rhythms and periodic failures to make corrective adjustments.

Near-infrared (NIR) light is an industry innovation that uses smart in-line technology to measure moisture quickly and accurately in samples multiple times per second. One such device is the **Kett KB30** in-line NIR moisture meter system, which uses smart sensor design to measure moisture levels without

connecting to controllers, PCs or other devices. This allows for local process control and remote integration.

Converters are available for wireless, IP, DeviceNet and other interconnection and communications platforms. This helps ease installation, integration and maintenance while maintaining moisture monitoring 24/7 for corrective action.

NIR meters allow for accurate instant measurement of solids, liquids and slurries without contact or sample preparation, avoiding contamination. Once calibrated against the lab or production standard, the meter stores this data and measurements are fully traceable to the original method.

Because the process is not destructive, samples remain unaltered and can be used for additional tests or returned to the product stream. The monitor is integrated with the accom-

TOOLS TO TRY



⬆️ NovaTech's augmented manual procedures software ensures the accurate execution of standard operating procedures and validation of manual tasks and comprehensive information capture and sharing to enhance safety and operational reliability. The platform independent architecture uses open standards and protocols to allow better collaboration by machines and operators. It is designed to improve processes such as plant startup/shutdown, material loading/unloading, line switchovers, clean-in-place, maintenance preparation and other tasks often completed manually. The software converts paper-based procedures into a digital format capable of operating on smartphones, PCs and tablets and displayed as a checklist, and can integrate bar coders or markers. Completed tasks are self-auditing and timestamped for future reference and compliance reporting. In the field, manual procedures are linked via the operator's interface on a mobile or stationary device to the control platform.



⬅️ Allegro Industries' all-weather SCBA Wall Case Series is designed for the storage of wall-mounted self-contained breathing apparatus in harsh environmental and plant conditions. They are made of injection molded polypropylene and are watertight, crushproof, dustproof, rugged and lightweight. A large viewing window allows greater visibility of gauges, and molded-in hinges allow easy open and close with stainless steel hinge pins, padlock protectors, an O-ring seal and an automatic pressure equalization valve.



⬅️ Crescent Lufkin's redesigned Steel Construction Long Tapes protect hands from backlash during rewinding. They feature a rugged over-mold casing that surrounds the tape for greater protection and unmatched durability. Built-in tether points allow for working at height without fear of dropping the tape and an extra wide, dual-sided end hook increases surface area for a strong grip. A dual-prong system folds up or down, allowing the user to utilize both sides of the blade. The crank is ergonomically designed with a built-in stop that allows the crank to travel above the fingers during retraction. They are available in 100-foot (ST100-07) and 50-foot (ST50-07) options, both with SAE and metric markings.

Syntegon Technology recently installed the first fully validated visual inspection system for a pharmaceutical manufacturer using artificial intelligence in an automated inspection machine. Its AI-equipped system was able to increase the particle detection rate by 70% while reducing the false detection rate by 60% (average values in a particular inspection station). Syntegon is set to implement AI in further inspection machines for different products and container types for pharmaceuticals. ➡️



panying Kett Tracker data collection and analysis software for improved error detection, defect analysis and product quality.

"NIR moisture and organic composition meters follow the principle that water and other organics absorb certain wavelengths of light," John Bogart, managing director of Kett US, said in a product release. "The meter reflects light off the sample, measures how much light has been absorbed, and the result is automatically converted into a moisture (or organic component) content reading."

The Kett KB30 offers a response time of 0.2 seconds, with plus or minus 0.01% accuracy and a moisture measurement range of 0.00-100.0%. The quick response time enables faster production line rates while measuring moisture levels. The

product has been used in industrial production lines to test pharmaceuticals, chemicals, foods, textiles, minerals, lubricants, pulp/paper goods and personal care products.

It is also compact, about the size of a car battery. Such data collection traditionally involves larger pieces of equipment linked by cords and cable, adding to an already crowded manufacturing floor and adding to the cost of labor and installation.

"Ultimately, smart moisture measurement technology translates into superior process control, quality, and production without the inherent drawbacks of slower, labor-intensive lab or batch testing," Bogart said.

Keith Albertson is managing editor of ISE. Interested in reviewing products for Tools & Technologies? Contact him at kalbertson@iise.org.