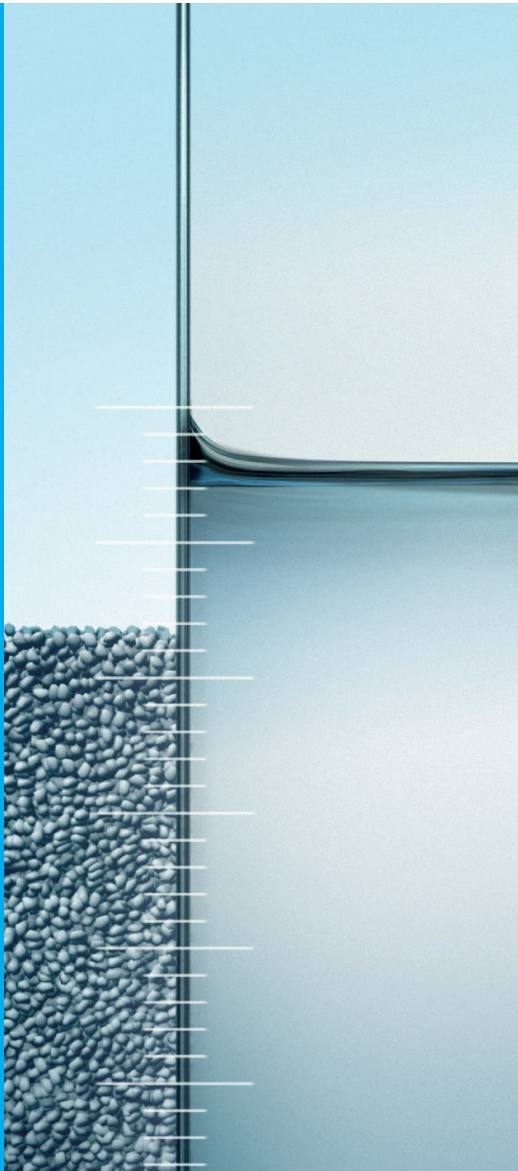


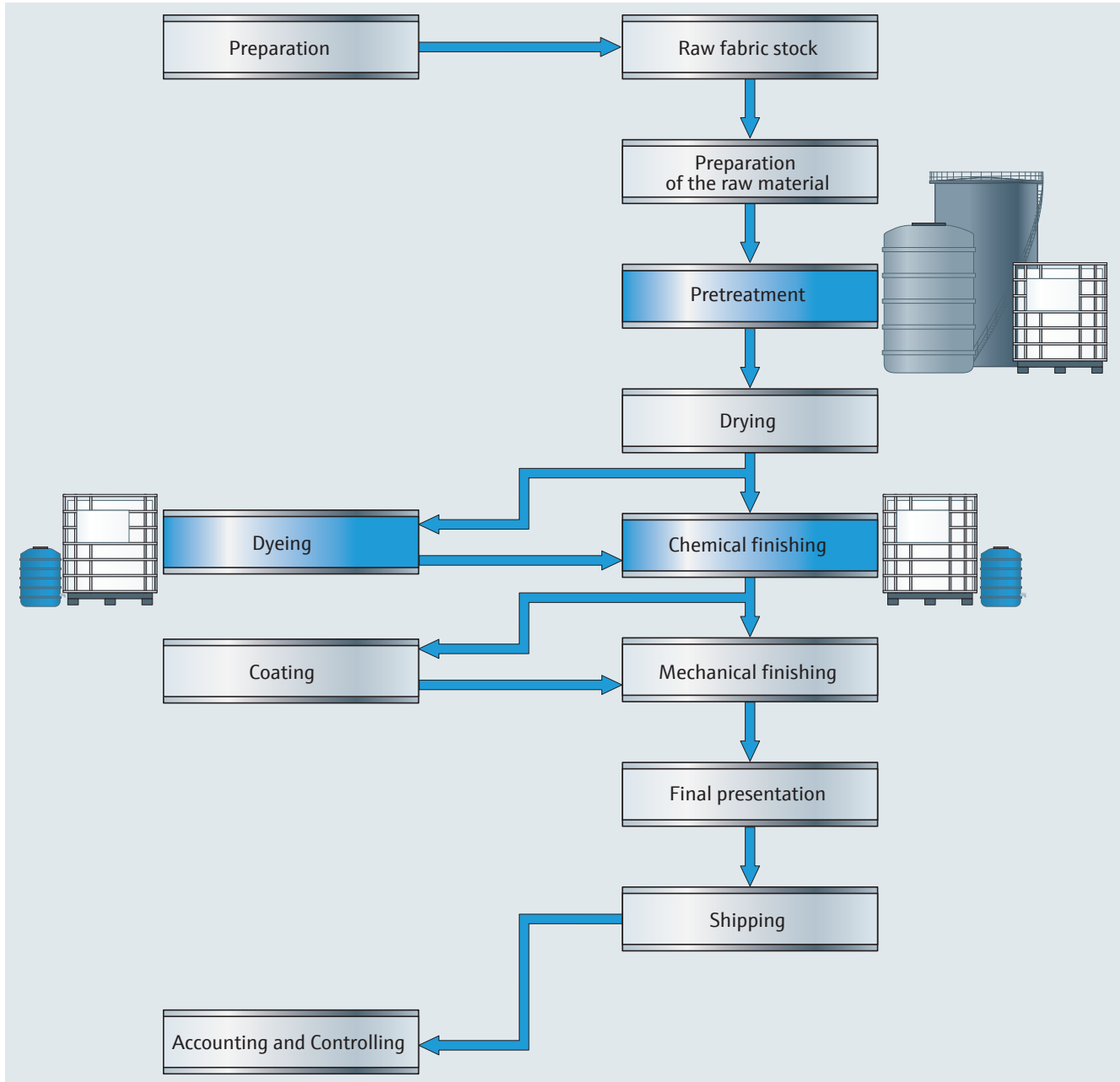
Micropilot FWR30

Optimized inventory management for auxiliary materials and additives in production

The storage of liquids, such as auxiliary materials and additives, in plastic tanks is part of many production processes in a wide variety of industries. Irrigation systems or liquid fertilizers for agriculture, additives as well as cleaning agents for the food industry or liquefiers for the production of concrete are just a few examples. To ensure continuous production, the liquids must always be available in sufficient quantities. Level measurement plays an important role here. The fact that plastic tanks are often located in remote locations without power supply and are widely distributed makes the process even more difficult.



As in many other applications, textile processing requires additives and other chemicals. A wide variety of liquids are used, especially in dyeing and chemical finishing of textiles. Baby clothes, awnings, fire protection blankets, clinical dressing materials, carpets or bed linens, etc. - textiles show a great variety. For this reason, the individual finishing and processing methods vary greatly and require article-dependent processes and substrates.



Storage of liquids in textile finishing

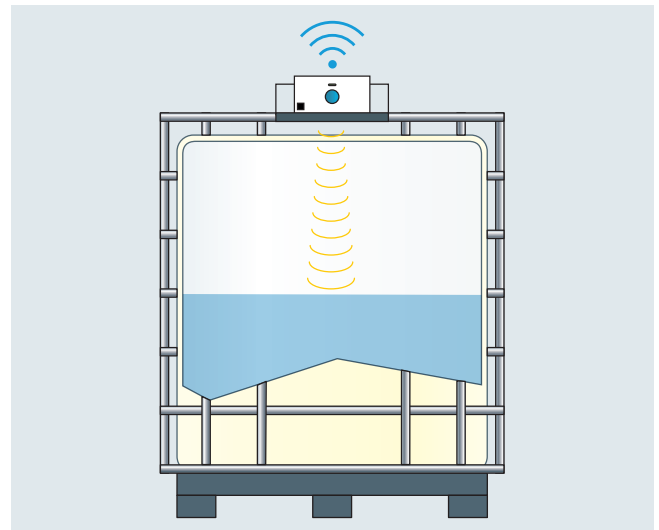
Level measurement

In practice, there are various methods to measure levels. In more than 80% of all production plants the level in plastic tanks are currently measured manually. For both, the so-called manual dipping and the pure visual inspection of the level, it is absolutely necessary that an employee reads the levels on site. Manual measurements are both time consuming and cost-intensive and are also very prone to errors. For this reason, missing stocks are often only registered when the tank has already run empty.

In the worst case, the lack of chemicals, dyes, perfumes or oils can bring the process of textile finishing to a standstill. As a result of production delays, customers may not be able to be supplied on time. Preventive safety stocks can prevent this, but in many cases, they are not economically viable.

Another method to determine the level in tanks and containers is the mechanical measurement.

One way to do so is to work with float switches. Here, a body with low density floats on the liquid. The level can be derived from the determination of the float height. The float is attached to a lever or thin cable and is used for overflow or dry-run protection in most cases. If the level exceeds or falls below a certain level, a switch is moved which then prevents overflow or dry run. When used in narrow vessels, however, there is a risk that the switch may jam mechanically. Since the float comes into direct contact with the stored product, this method cannot be used in abrasive, corrosive or toxic media. For this reason, mechanical level measurement is not suitable for most applications in the textile industry.



Time-of-flight measuring principle

In many cases, levels are determined by time-of-flight measurement. Ultrasonic or radar devices work by means of speed measurement. Depending on how long a signal needs to pass through the measuring section, the level can be determined depending on the geometry of the vessel. A clear advantage of radar measuring instruments is the non-invasive, contactless measurement. Levels of abrasive or toxic products can be determined without problems. The disadvantage of conventional time-of-flight instruments is the need for a power supply and the associated cabling and installation effort. Furthermore, measuring points are often located in remote places without power, which previously excluded the use of this method.



Optimized inventory management – simple, from scratch

In order to meet the challenges mentioned above, Endress+Hauser has developed a new generation device for managing inventories. The Micropilot FWR30 is suitable for both stationary and mobile applications and can be combined with various digital solutions. As the world's first 80GHz wireless IIoT sensor, it combines high-end measurement technology with user-friendly digital services in a cost-effective device. The continuously recorded measurement data can be accessed at any time and from anywhere via the device's cloud connection. This provides full transparency during storage and transport of additives and other chemicals.

In the textile industry, a wide variety of containers are used depending on the application. Whether storage tanks for storing dyes, large plastic tanks for storing stabilizers for pretreatment, drums for brighteners and special effect chemicals as well as IBCs for synthetic resins, dyeing auxiliaries and surfactants - the Micropilot FWR30 is suitable for a wide range of applications.

The intelligent sensor determines the level in liquids using high-frequency radar pulses. These are emitted by an antenna and reflected by the surface of the stored medium. The flight time of the reflected radar impulse is directly proportional to the distance traveled. If the vessel geometry is known, the level can be calculated from this. Due to the contactless measurement, the Micropilot delivers precise measuring results in all liquid media, independent of



Mounting the Micropilot FWR30

viscosity and toxicity. Commissioning of the new Micropilot is simple and takes less than three minutes.

After mounting the device, the sensor is immediately ready for use. An integrated battery allows operation without an external power supply, which is an advantage especially at hard-to-reach or mobile measuring points. Furthermore, installation and cabling costs can be saved. Depending on the application and defined measuring intervals, battery lifetimes of up to 10 years are possible.



IBC tanks in the textile industry

Due to its compact design, the Micropilot FWR30 is perfectly suited for stackable plastic tanks. In addition to level data, the integrated SIM card provides the user with information on the location of his storage tanks and containers. The intelligent sensor uses wireless mobile communication. The cost-effective data transmission is done via NB-IoT, LTE-M or 2G fallback. The first cloud-based radar sensor digitizes measuring points in the blink of an eye and delivers precise, process-relevant information where previously only assumptions were possible. This device helps users to optimize their logistics and storage processes which increases production efficiency.

Software application for full transparency in storage and transport of liquids

Contactless time-of-flight measurement methods for determining levels have been an integral part of the Endress+Hauser portfolio for more than 50 years. In order to enable simple inventory monitoring of plastic tanks, Endress+Hauser now offers the web application Netilion Inventory. This web application is optimized for use on mobile devices and meets the highest security and data protection requirements.

The combination of a level sensor and the software solution Netilion Inventory offers more than just current measuring values. A clearly arranged dashboard provides an overview of the entire inventory. Not only is the respective level displayed, but also the volume is calculated. Therefore, the user knows at any time, exactly how much product they have in their tank and how much free storage capacity is still available in case of reordering.

To keep manual control processes to a minimum and to automate processes, so-called push messages can also be used. When certain threshold values are reached, the corresponding users receive an e-mail. So, if a chemical is no longer available in sufficient quantities, the timely reordering can be initiated without the time-consuming manual control of individual tanks and containers. Even in case of material losses outside of business hours, the defined people are informed via push messages. This allows theft or leakage to be detected and tracked more quickly. This function can be used both within a company and when working with external partners such as suppliers and customers.

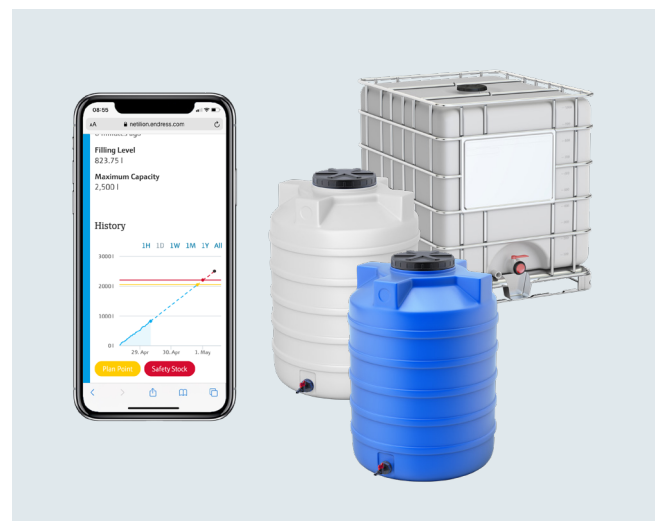


Simple inventory management for stationary and mobile applications

If you do not want to wait until minimum stocks of the stored liquids are reached, but you want to plan your reorders proactively yourself, Netilion Inventory offers a modern and easy solution. The software automatically generates a forecast from the historical consumption of the last two weeks. In addition, a glance at the consumption history allows conclusions to be drawn about normal demand and helps to identify any process deviations.

In many cases, stocks of raw materials and additives are widely distributed. In order to keep the overview, the map function of Netilion Inventory can be used. It visualizes all stocks on a map and creates a geographical overview. This feature helps with internal and external logistics and can support route planning.

The features of Netilion Inventory, in combination with Micropilot FWR30, offers users a cost effective entry into inventory management. This simple and cost-effective solution provides consistent inventory information and can be easily integrated. Production downtimes due to missing chemicals, perfumes, oils or dyes for textile finishing are no problem anymore. Preventive safety stocks, which increase storage costs, can also be avoided.



Simple inventory management for stationary and mobile applications



For more information on the Micropilot FWR30 and Netilion Inventory simply scan the QR codes:



Micropilot
FWR30



Netilion
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