



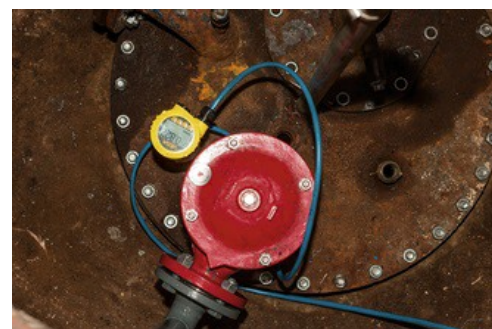
Chemicals distribution 4.0 – Digital transparency through VEGA sensors and VEGA Inventory System

Chemicals distribution is a complex and multi-faceted business that includes purchasing, storage and logistics solutions for chemical products. This is especially true for a company like Brenntag, which is active in numerous industrial sectors such as pharmaceuticals, cosmetics, food, coatings, plastics, oil and gas, and water treatment. Each of these sectors places special demands on the raw chemicals it needs.

Typical chemical products in the Brenntag portfolio include acetates, alcohols, alkalis, acids, bleaching agents and disinfectants, solvents, as well as toluenes and xylenes. Manufacturers, and thus suppliers, are well-known, globally active companies in the field of wholesale and specialty chemicals. Their job now is to "design" exactly the product the customer needs, using a selection of these basic chemicals and diluting or mixing them, and making the product available in the desired quantity at the right time and place. For this they need qualified employees who identify with the customer's requirements, as well as sophisticated technology for storing and monitoring everything safely and intelligent logistics that ensures delivery exactly as the customer specifies.

Recording, transmitting and visualising measured values

However, those responsible for logistics and technology in the company are increasingly confronted not only with stricter safety requirements and environmental regulations, but also with demands for transparency in the value-added chain. The answer to this was a comprehensive digital initiative in the company that involved on-site investments in storage facilities, [measurement technology](#), [signal transmission](#) and process visualisation. The overarching goal was to modernize existing plant components economically while largely maintaining ongoing operations. The logistics and engineering departments attached great importance to providing fast assistance to the decentralised facilities and eliminating malfunctions via remote maintenance.



Chamber of an underground solvent tank with a VEGAPULS 64 radar sensor.

For this purpose, the level signals should be read in, standardized and made available for visualisation as well as further processing. The functional solution found was to be standardized and transferred to other Brenntag locations. This would require a partnership-based collaboration with suppliers of measurement and automation technology and a joint approach to the solution. In other words, the chemistry just had to be right. Brenntag found the ideal partner in gefeba Engineering, the specialist for automation technology and infrastructure and in VEGA, the metrology, signal transmission and visualisation expert.

With all the prerequisites in place, implementation of the planned measures could begin. At one location, the acid storage facility, which encompasses ten new 30 m³ PE tanks for sulphuric, hydrochloric and acetic acid in different concentrations, was equipped with proven VEGASON 61 ultrasonic sensors for level measurement. A VEGASCAN 693 gateway supplies the sensors in HART multidrop mode and provides the signals for the company network via the Ethernet interface. The ten existing underground solvent tanks with a total of 30 chambers are gradually being retrofitted with modern measurement technology. Existing sensors based on older generation guided radar have been replaced by VEGAPULS 64 radar sensors for level measurement. The sensors have an intrinsically safe supply via VEGAMET 624 controllers. These provide switching contacts for a pre-alarm and an end shut-off of the safety valve at maximum filling. Here, too, the level values are delivered to the company network via the Ethernet interface.

VEGA Inventory System as a software solution

For a company like Brenntag, it is extremely important to monitor chemical inventories at all locations at all times. Lower inventory levels mean lower costs. Again, the right tool was required: tailor-made for this task, cost-effective and easy to use. The solution: VEGA Inventory System. It allows the instrumentation on tanks and silos to communicate directly with the local logistics centres as well as with the company headquarters. The user-friendly software accesses not only the current measurement data, but also past consumption data, optimum order quantities and future planning targets.

Thanks to VEGA Inventory System, those responsible for logistics and technology in the company become essentially system administrators: They can easily integrate additional locations into the system and also grant access rights to Brenntag customers. Level data recording over a longer period of time allows an assessment of business development up to the present and thus a forecast for the future. The automated flow of information with its digital transparency offers long-term advantages for the entire supply chain: early information for the supplier and security of supply for the customer.



Control cabinet with VEGAMET 624 controllers for the underground solvent storage facility.



Inventory management with VEGA Inventory System.

Software solution for remote monitoring and inventory control



Further applications in different industries

