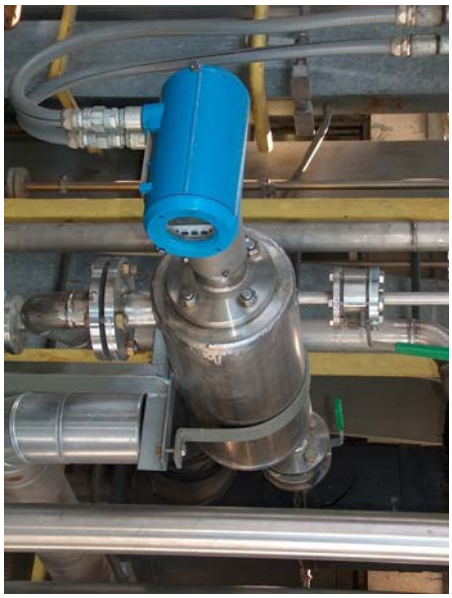
Press Release

A Different Way to Measure Concentrations



Measuring the Concentration of Two-Component Mixtures

Measuring concentrations is a routine task in the process industry. There are currently various processes available for measuring the concentration of two-component mixtures of immiscible liquids. From the most common (taking a sample and analyzing it in the laboratory), to measurement of density, refraction index, optical absorption, or online analysis.
Thanks to research carried out by KROHNE, there is now another measure method using the latest TDR level meters, which relies on the dielectric constant. Finding the dielectric constant of two-component mixtures makes it possible to calculate the proportion of each component.
As the cost of a KROHNE TDR level meter is considerably lower than that of the other processes (as much as 10 times lower in the case of online analysis devices), it is an economical and efficient alternative.
OPTIFLEX type TDR level meters are maintenance free, have no moving parts and can also work with suspensions, such as Xylene and water. In this case the OPTIFLEX can also be used for recognizing separate layers, for example for separations in the batch process.

KROHNE carried out successful tests at a well-known chemical company in Italy for this method of concentration measuring for two-component mixtures using a TDR level meter. The technicians installed the meter at the outlet for a continuous Xylene distillation unit. A water washing tower is positioned before the distillation column, so that there is still water in the distilled Xylene. Until now the company had been taking a sample every 8 hours and calculating the water content in the laboratory using the Karl-Fischer process. To save these costs, and to have a continuous analysis, the chemical company decided to measure the dielectric constant using a TDR level meter. First of all a calibration unit was set up, to create a calibration curve. After the concentration curve for water in Xylene was created, the meter was installed into the system. For a relatively small investment, the company has managed to make sampling and laboratory analysis for every shift redundant. Continuous measurement also has clear benefits for process control.

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