



APPLICATION NOTE Chemical

Chemical dosing into liquid mixer

- Fill the mixer in half the time
- Increased mixer efficiency
- Improved homogeneity of mixture thanks to simultaneous supply of reactants

1. Background

A laundry detergent producer operates a test plant in which liquid detergent can be produced using different recipes for test purposes. The liquid mixer has a holding capacity of one tonne.

2. Measurement requirements

The proportions of the reactants must be strictly observed when manufacturing new types of detergent. In addition to demineralised water, alkaline lye and caustic lye, malonic acid and other acids and solvents are dosed into the mixer. Previously, base products had always been added to the mixture sequentially using weighing cells. The operator was looking for a new solution to accelerate the filling process while maintaining high precision.

3. KROHNE solution

One Coriolis mass flowmeter was used for each raw material to measure the quantities that were fed in, making a total of 11 OPTIMASS 7300 in nominal sizes ranging from DN 15 to DN 40. As some of the reactants require increased chemical resistance on wetted surfaces, devices featuring a measuring tube made of titanium were used and the rest of the measuring stations were equipped with stainless steel measuring tubes. Remote converters were installed for improved display readability and to save space.

4. Customer benefits

OPTIMASS measuring devices feature a single straight measuring tube without flow splitter or internal objects. This means that the high viscosity of some reactants poses no problems for the mass flowmeter. The customer provided KROHNE with detailed information about the media beforehand so that the devices could be precisely sized and the accuracy could be guaranteed in practice.

Using mass flowmeters offers operators several advantages: The reactants can be extremely accurately added to the mixer simultaneously through the ring lines. This saves a tremendous amount of time compared to dosing using the weighing scales and the mixer can be filled in half the time. This also makes it available sooner for the next mixture which means that twice as many tests can be conducted in the same period of time. At the same time, thanks to the simultaneous supply, the reactants are distributed even before the stirring device in the mixing tank starts, guaranteeing improved homogeneity of the end product. According to the operators, the relatively high initial investment for the mass flowmeters compared to the weighing cells pays for itself in just a few weeks due alone to the higher efficiency of the mixer.



Remote version offers good readability

5. Products used

OPTIMASS 7300 F

- Only mass flowmeter with a single straight measuring tube available in Stainless Steel, Hastelloy, Titanium and Tantalum
- Approved according OIML R 117-1 for mass and volume flow accuracy class 0.3
- Can be installed anywhere, regardless of vibrations
- Minimal pressure loss
- Easily drained and easy to clean



Contact

Would you like further information about these or other applications?
Do you require technical advice for your application?
application@krohne.com

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