



OPTIMASS to measure the dry solids content in thick sludge



One of 17 OPTIMASS devices in the MÜNCHEN II Gut Marienhof sewage treatment works, here in the outlet of the sludge thickener

Accurate measurement of the dry solids content in the sludge from a sewage treatment plant is important for overall plant optimization. This is generally done by means of hand specimens and laboratory evaluation of the organic and mineral DS content. A critical point is the DS_R analysis of the thick sludge in the inlet to the dewatering plant. A precisely defined quantity of flocculant, which is dependent on the widely varying concentration of dry solids in the inlet, needs to be added in order to obtain optimum dewatering. Due to the small difference in density between solids (approx. 1.35 – 1.6 kg/l) and water (1 kg/l), with at the same time a low solids concentration (1 - 5%), high demands are placed on the accuracy of the measuring system used and on quick availability of evaluation data.

OPTIMASS ideal for thick sludge

A Coriolis mass flowmeter has the advantage over the earlier used radiometric density meter in that there are no statistical variations in density measurement. Online sensors for solids are susceptible to fouling where sludges with high dry solids content are concerned, and can only be used in limited scope since they measure only at one point in the pipe cross-sectional area.

Coriolis straight-tube mass flow meters are absolutely ideal for thick sludge as their measuring tube is a single straight tube, with no flow dividers or elbows, that can measure the density of sludge with better than ± 1 gr/l accuracy and excellent long-time stability. Any gas bubbles in the sludge can be minimized by further pressing of the sludge. The OPTIMASS devices are available up to size DN 80, alternative measurements in the bypass are possible.

Using the appropriate conversion factor for the solids density, the measured value "density" can be converted into a concentration value, and in combination with the sludge quantity can be converted into a solids quantity, because in many cases there is a linear interrelationship between the organic and mineral contents of the solid matter. If the ignition residues are known and the ratio of organic to mineral solids is reasonably constant, the DS_R in the sludge can also be determined direct and continuously.

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