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Intelligent chemicals dosing reduces operating costs for flotation plants

HUBER Chemicals Dosing DIGIT-DOSE setting new standards for the efficient operation of flotation plants

Industrial wastewater treatment cannot be imagined anymore without flotation technology. Flotation ensures that suspended matter, grease and particulate pollutants are effectively removed from production wastewater. If also dissolved pollutants need to be converted to particulate matter, precipitants and flocculants are added. Such additives can enormously increase cleaning efficiency, they are however also the major cost factor in the operating costs for a wastewater treatment plant. As few as possible, yet as many as necessary of such chemicals should therefore be used!

In practice, it is however difficult, not to say almost impossible, to dose the precipitants and flocculants optimally.

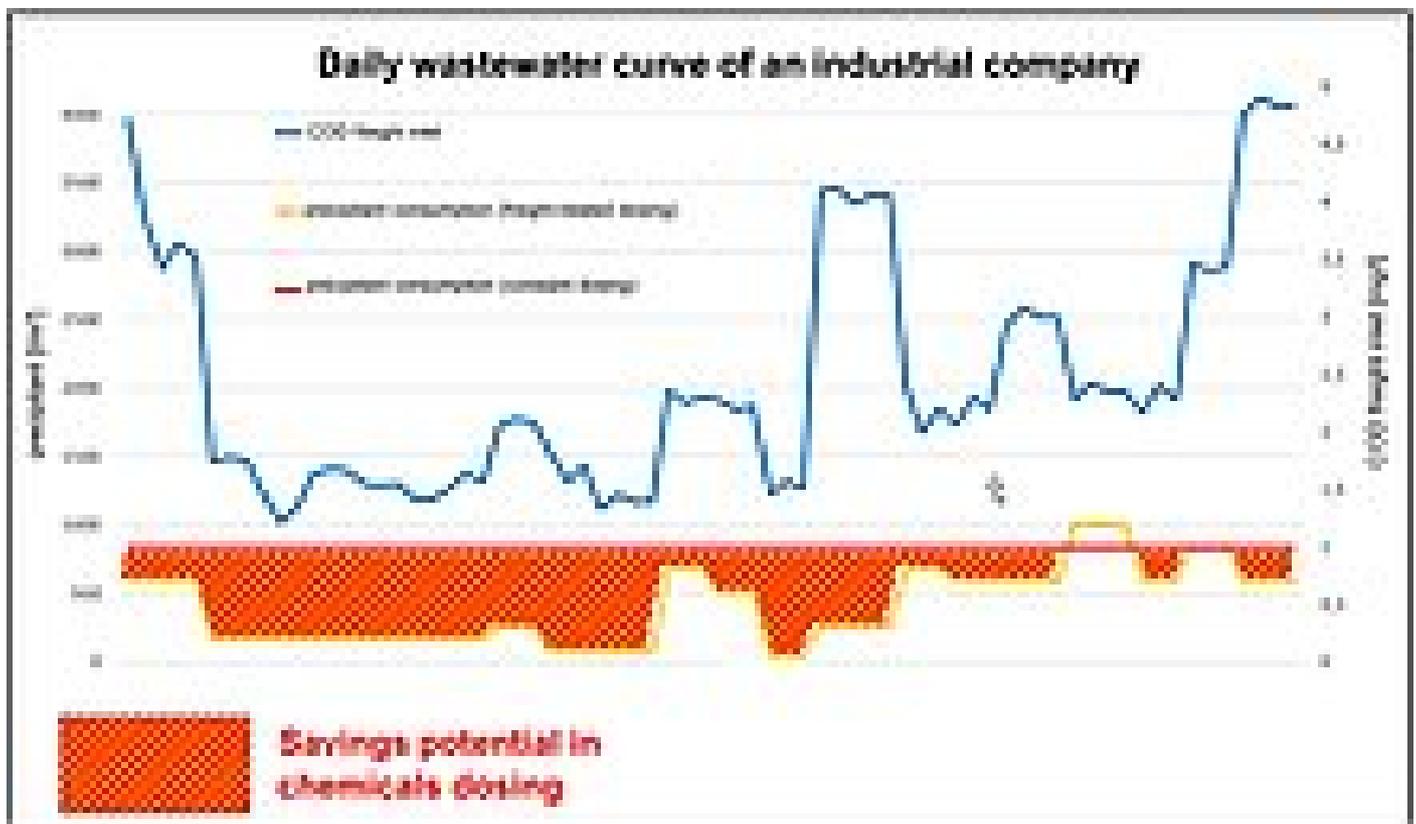


Fig.1 : Variation of pollutant loads over the day and possible savings with the use of the HUBER DIGIT-DOSE system

The wastewater generated in industrial companies comes from different production processes, with partly strongly varying flow volumes and loads. To ensure continuous feeding of the flotation plant nevertheless, a mixing and balancing tank for homogenisation is installed upstream of the flotation plant. Varying loads can be reduced this way but not prevented completely.

Varying loads cause increased operating costs

To ensure in daily practice that the required clarification efficiency is achieved even with peak loads, precipitants and flocculants are overdosed.

Another possibility is the manual adjustment of the doses by the operating staff. This reduces chemicals consumption but requires personnel.

Intelligent freight-dependent dose control minimizes operating costs

HUBER has risen to this challenge: with a flotation plant that both achieves the required clarification results reliably and at any time despite varying inlet loads and at the same time minimizes the consumption of precipitants and flocculants without staff attendance!

This challenging task has been met with the newly developed DIGIT-DOSE system.

The intelligent dose regulation is at the heart of the DIGIT-DOSE system, permanently determining from the measurement data of different sensors the pollution degree of the wastewater and adding then the required dose of different chemicals.

Such optimized use of chemicals reduces also the amount of flotatae sludge. Beside the operating costs for chemicals, disposal costs for flotatae sludge are another main cost factor.

DIGIT-DOSE meets expectations in practical operation

The feedback received from plant operators to date are very positive and confirm that DIGIT-DOSE has fully reached the development targets:



Fig. 2: Amount of precipitants saved in an existing flotation plant where the HUBER DIGIT-DOSE system was retrofitted – savings achieved with precipitants consumption alone: 33%!

- significant chemicals savings
- less flotatae sludge
- improved clarification results
- reduced staff involvement
- significantly reduced operating costs

The investment costs for the HUBER Chemicals Dosing DIGIT-DOSE pay off for plant operators within a very short time due to the significantly reduced operating costs. Existing plants retrofitted with DIGIT-DOSE have shown that the ROI (Return on Investment) can be achieved within only one year.

If HUBER DIGIT-DOSE is considered and included already in the project engineering phase, the size of mixing and balancing tanks can be reduced to the minimum. Any load variations still present can then reliably be managed with the freight-controlled chemicals dosing solution without any negative effects on operating costs and/or plant efficiency.

Download case study:

[HUBER Dissolved Air Flotation Plant HDF with DIGIT-DOSE setting new standards in wastewater treatment](#) [pdf, 201 KB]

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