

Improving mass transfer in gas-liquid systems by “supercavitation”

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A newly-developed fine bubble aeration system, by which air is transferred under supercavitation conditions, shows a clearly better performance than traditional, well-known aerators that rely on the jet-pump principle and its performance can be compared to oxygen transfer rates achieved in membrane and foil plate aerators. A prototype supercavitation aerator installed at a sewage treatment plant revealed an air input rate, which was about one third lower than that of the jet pump system, which it replaced. In spite of this low air input rate, the daily demand of pure oxygen for the additionally installed membrane aeration system went down by approximately 49 percent, from the original level of about 1 200 m³/d to about 600 m³/d - and this over a test period of more than seven months. With this new aerator and during the first three months of test phase already, more than 10 000 Euros had been saved because of the reduced pure oxygen demand.

Biography

Andreas Schmid has a Ph.D. in Biochemical Engineering-Environmental Engineering and now is a full Professor in water and wastewater treatment at the Faculty of Engineering at the University of Applied Sciences Hof, Germany. More than 20 years of working experiences in industry built the fundament to derive applied sciences at his current position. He received several awards for his research in the water and wastewater sector and holds a couple of national and international patents in environmental techniques. At present his research focus concentrates on cavitation technologies and relating applications in environmental engineering - especially elimination of industrial- and micro-pollutants.

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