



## Micro-eddy coagulation mechanism and its application in water purification plants

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Received 7 November 2017; Accepted 4 February 2018

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### ABSTRACT

This paper introduced the new technique of micro-eddy coagulation water treatment, which functioned through micro-eddy cohesion and three-dimensional contact flocculation to take full advantage of the coagulation space, the coagulation energy, and floc activity, thus greatly improving the efficiency of coagulation reaction. Also, the core of the micro-eddy coagulation technique—the structural characteristics and process characteristics of vortex reactors were described, and the key technology regarding the selection of different hole-opening diameters and the control of hole-opening rate was pointed out explicitly. Finally, the modification and operation of this micro-eddy coagulation technique in a water treatment plant in Guangdong Province was described in detail. The operational practice shows that micro-vortex coagulation technique has high coagulation efficiency, fast reaction time, excellent outflow quality, and excellent versatile ability. In addition, this technique can help save the overall project investment, reduce the cost of water production, simplify the construction processes, maintain stable operation environment, and facilitate operation processes, and thus is of pretty high social and economic benefits.

*Keywords:* Micro-eddy coagulation; Vortex reactors; Vortex clarification; Hole-opening rate

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