

## 迷宫流道转角对灌水器抗堵塞性能的影响 Influence of Angle of Labyrinth Channels on Anti-clogging Performance of Emitter

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关键词: 灌水器 迷宫流道 转角 抗堵塞性能

摘要: 以转角分别为 $45.0^\circ$ 、 $60.0^\circ$ 、 $67.5^\circ$ 和 $75.0^\circ$ 的齿形流道灌水器为研究对象,应用CFD流场速度数值分析、PIV颗粒运动轨迹线和速度观测对比以及浑水抗堵塞测试相结合的方法,研究了转角对灌水器水力性能和抗堵塞能力的影响。结果表明转角与流量系数及流态指数均呈负相关关系,而灌水器的抗堵塞能力随着转角的增加呈下降趋势。综合分析转角对水力性能和抗堵塞性能的影响,提出迷宫流道结构灌水器的合理转角为 $60.0^\circ$ 。The influences of angles ( $45.0^\circ$ ,  $60.0^\circ$ ,  $67.5^\circ$ ,  $75.0^\circ$ ) of dental labyrinth channels drip emitter on hydraulic and anti-clogging performance was studied by the following methods: the CFD numerical simulation of the velocity in the flow field, the PIV observation of the trajectories and velocity of particles in flow path and the samples experiment. The results showed that there is a negative relationship between angle and discharge coefficient together with flow state exponent, in addition with the increasing of the angle of emitters, the anti-clogging ability declines. Therefore, combining the hydraulic and anti-clogging performance, a reasonable angle of  $60.0^\circ$  is put forward.

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