

Characteristics of the particle collection for a vortex scrubber with opposing nozzles

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This study investigated the particle collection efficiencies of a vortex scrubber equipped with the tangential inlet to develop a swirling flow and the opposing nozzles to generate liquid droplet for capturing particles. A series of experiments on the vortex scrubber were conducted to examine the characteristics of its particle collection efficiency by varying the operational conditions, such as the opposing nozzle diameter and distance between nozzles, the flow rates of gas and liquid, and so on. The particle collection efficiency in the vortex scrubber increased as the flow rate of scrubbing liquid increased and the distance between opposing nozzles decreased. The large liquid flow rate and close distance of opposing nozzles lead to the strong collision between liquid from opposing nozzles, which produces the small and monodisperse liquid droplet.