

Synergic removal of multi-pollutants from industrial boiler & furnace flue gases using urea-based solution

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Various kinds of air pollutants including SO₂, NO_x, HF, HCl and heavy metals are emitted from industrial boiler & furnace. Synergic removal of these pollutants in one system is considered a valuable option in terms of low investment and simple system. Herein, urea-based solution was used to simultaneously remove SO₂, NO_x, fluoride and heavy metals (Hg⁰, Cd²⁺, Pb²⁺, Ni²⁺, etc.). Urea ((NH₂)₂CO) is a slightly alkaline reagent with a strong reducing capacity. Compared with other absorption solutions, urea is a cheap and non-toxic reactant and can be obtained easily. Meanwhile, a small amount of additives (oxidant and stabilizer) were introduced into urea solution for enhancing the absorption efficiency of these pollutants. Generally, a removal efficiency of 95% SO₂, 50% NO_x, 85% HCl, 85% HF and 95% heavy metals was simultaneously obtained in the bench-scale study.

Biography

Chaoping Chen has completed her Ph.D. in 2002 from South China University of Technology. She has worked on air pollution control technologies for more than ten years, with expertise in absorptive removal of air pollutants. She has received special government allowance from the State Council of PR China since 2011 for her contributory research.

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