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(71) Applicant: ABB ENVIRONMENTAL SYSTEMS [US/US] , Div. of ABB Flakt, Inc., 31 Inverness Center Parkway, Birmingham, AL 35243 (US).		
(72) Inventor: BRESOWAR, Gerald, E. ; 528 Oxford Circle, Homewood, AL 35209 (US).		
(74) Agents: ST. ONGE, Ronald, J. et al. ; St. Onge Steward Johnston & Reens, 986 Bedford Street, Stamford, CT 06905 (US).		Published With international search report. 9612035-7 RTMP + annexes

(54) Title: IMPROVED ENTRAINMENT SEPARATOR FOR HIGH VELOCITY GASES AND REHEATING OF SCRUBBER GASES

(57) Abstract

Sulfur oxides (SO_x) are scrubbed from combustion effluents with aqueous limestone slurries with greater efficiency due to the use of an improved entrainment separator (130). In the preferred embodiment of a single-loop, counter-current limestone wet scrubber (100) (preferably with a spray-contacting zone of less than 6 meters in height) operating at bulk gas flow rates of greater than 4.5 meters per second, a vertical stream of flue gas is freed of a substantial portion of slurry droplets and diverted for effective mist removal by a well-drained, horizontal-flow mist eliminator (140). The entrainment separator (130) is a single-pass device with individual blades aligned for effective operation with reduced droplet impingement on the upper walls (e.g., roof) of the scrubber and to permit periodic washing. Use of a vertically-oriented, horizontal-shaft rotary heat exchanger (431) is facilitated and space and duct work requirements are greatly reduced.

