

S1.1.4 INFLUENCE OF AN ADDED FRACTION OF HYGROSCOPIC SALT PARTICLES ON THE OPERATING BEHAVIOR OF SURFACE FILTERS FOR DUST SEPARATION

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This paper describes a new approach to manipulating the operating behavior of surface filters for dust separation by doing raw gas conditioning using hygroscopic salt particles.

The basis for a targeted manipulation of the operating behavior of surface filters is, as a rule, always attributable to the fact that a favorable performance adjusts itself at long cycle times. These are obtained by a slow increase in pressure drop during the filtration phase and by a low residual pressure drop after the regeneration. Technically, such states can be realized by so-called raw gas conditioning, which means that the characteristics of dust particles during the flight phase or in the dust cake are selectively modified by dosing additives or introducing energies.

The deliquescence and efflorescence properties of hygroscopic salt particles, which can be induced by a transient increase in gas humidity, can be considered as possibilities for the formation of solid bridges between dust particles in the dust cake. With this raw gas conditioning concept, a flexible and targeted strengthening of the cohesion in the dust cake without an accompanying modification of the adhesion between the cake layer and the filter medium is theoretically possible. Experimental setup and methods for the study are described in this paper. Results of basic experiments are presented.