

Summary

Electrostatic precipitators (ESP) are the most commonly used devices for gas cleaning in the power industry. From the beginning of ESP usage on a commercial scale, it has been said that all swirls and turbulences should be eliminated from the gas flow, approaching uniform gas distribution in an ESP chamber. Application of CFD (Computer Fluid Dynamics) methods in electrostatic precipitation caused radical changes in views on the role of the gas flow. Series of non-uniform gas flows was then indicated, causing an increase in ESP efficiency. This paper is a review of the gas flow distributions used in ESP and their influence on ESP efficiency. The results of computer analysis presented in this paper show that diversification of gas velocity in the ESP chamber leads to efficiency improvement for shorter zones; however, for longer zones it causes an efficiency drop. The efficiency raise owing to diversification of gas flow profile is a consequence of exponential gas velocity – efficiency dependence.