# NUMERICAL MODELLING OF THE AEROSOL DUSTING IN THE ELECTROSTATIC FIELD

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Movement modeling of the gas mixture in the electrostatic field can be used for optimization of dusting aerosols technological processes. In this case the factors influencing concentration of a disperse phase near to the processed surface are the surface form, distance and a potential difference between it and a positive electrode, speed and concentration of a bearing and disperse phase in a stream, the sizes, density and a charge of aerosol particles. The model considering these factors, can be constructed on the basis of the equations of movement of the two-speed and two-temperature environment in which electrostatic influence on the charged particles is considered. As such model the system of the equations of non-concussion dynamics of the monodisperse two-temperature and two-speed environment without the phase transitions, constructed in the assumption has been chosen that viscosity the bearing environment which is described by the Navier – Stokes equations for compressed gas. The disperse phase is described by the equation of preservation of weight, impulse and internal energy. The system of the equations in the generalized coordinates is solve by explicit MacCormack scheme with Spalart – Allmaras turbulence model and splitting in spatial directions. The scheme of conservative correction was applied to obtaining the monotonous decision. Calculations of movement charged mixture in electric field were carried out. This method is applied to research of speed and gas mixture density fields in interelectrode space with reference to technology of powder coloring.

Keywords: two-high-speed two-temperature monodisperse mixture, electrostatic field, force of the electric interaction, Navier – Stokes equation, MacCormack explicit scheme.