

Modeling Turbulent Injection of Electrically Charged Dielectric Droplets

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Abstract—This work presents a study of behavior of electrosprayed dielectric liquids in a presence of external electric fields produced in a cylindrical geometry. Computer models were created to examine dynamic manipulation of electrically charged sprays under varying environmental and injection conditions such as pressure, injection velocity, turbulence parameters. The goal of this work is to develop a framework for applications in electric field-controlled injection and combustion processes, such as those utilized in internal combustion and jet engines.