

## Dripping processes of the fluids with complex rheological properties

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Dripping characteristics of rheologically complex fluids are studied experimentally. The solution of ethylene glycol and glycerol (NF) is used as the base Newtonian fluid. Polyacryamide solution (PF) and the polystyrene particle suspensions in the PF and the NF are prepared varying the particle volume fraction. The fluid is dispensed through a nozzle and the motion of the fluid is recorded by a high speed imaging sensor. A series of image analysis is conducted and the forces affecting the dripping process i.e. gravity, surface tension force, extensional force and momentum convection are evaluated using the fluid properties and the information extracted from the images of the dripping fluids. It has been found that, for the cases of the NF, the gravity and surface tension force are balanced during pinching and the extensional force plays a negligibly small role. In the case of the PF, the dripping process is retarded due to the strain hardening. The suspensions in the NF show qualitatively the same dripping process with the NF. In contrast, the dripping processes of the suspensions in the PF differ from that of the PF because of the changes in the rheological properties as the particles are added.