

Simple fluids in simple flows: drop formation, deformation and impact on solid surfaces

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Most industrial fluids, even those with shear viscosities approaching that of water, exhibit highly non-Newtonian behaviour in flows associated with the processes of atomisation, emulsification and droplet deposition. These non-Newtonian characteristics result from the presence of minute amounts of surfactants, polymers and combinations thereof, usually added for other reasons than flow control. This paper will provide an overview of recent insights from investigations into drop formation and break-up, microdroplet deformation and droplet deposition of a set of well characterized model low viscosity complex fluids.