

## Spray Impact on Solid Walls of Non-Newtonian Fluids, Including Yield Stress and Thixotropic Behavior

Daniel A. Weiss<sup>(1)</sup>, Annett Reinl<sup>(1)</sup>, David M. Binding<sup>(2)</sup>

(1) *DaimlerChrysler, Research and Technology, ULM, Germany*

(2) *Dept of Mathematics, University of Wales Aberystwyth, UK*

In a variety of applications the interactions of sprays with solid walls play an important role. The fluid may be pseudoplastic, possessing a non-vanishing yield stress, and thixotropic, with a viscosity showing a time-dependency, in addition to the shear-rate-dependency. Spray impact of thixotropic fluids with yield stress onto a dry smooth solid wall is investigated numerically. The rheological behavior of the fluids is modelled by a stationary flow curve, completed by a Quak model for the time-dependent change of the viscosity. A commercially available code, based on the volume-of-fluid method is used. The code has been verified for fluids with yield stress and thixotropy, respectively, in viscosimetric flows and in impact processes of single drops. Calculations are performed for thixotropic fluids with yield stress of practical relevance. The results are compared with cases without thixotropy. They provide initial conditions for the subsequent evolution of the coherent fluid film.

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