

Experimental and Theoretical Description of a Rotating Liquid Jet

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The industrial process of prilling, which is used in the manufacture of small pellets, involves liquid jets emerging out of holes on the surface of a rotating cylinder. These jets are curved because of the rotation and gravity, and breakup into droplets because of surface tension. The dynamics of a curved liquid jet is examined both experimentally and by using a mathematical model. The breakup is discussed for inviscid, viscous and non-Newtonian liquid jets, in a vacuum and in air. Convective and absolute instability is examined.

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