

Principle of Laminar Jet Break-UP VAR D



The electromagnetic laminar jet breakup technology is based on the principle that a laminar jet of a liquid feed passing a nozzle of appropriate diameter is broken into equally sized droplets by a superimposed mechanical vibration. The vibration has to be done in resonance of the Plateau-Rayleigh instability and leads to very uniform droplets.

The Plateau-Rayleigh instability is named for Joseph Plateau and Lord Rayleigh who in 1873 found experimentally that a vertically falling stream of water will break up into drops if its length (so called wave length of disturbance+ in specialist literature) is greater than about 3.13 to 3.18 times its diameter.

Using the natural liquid instability and replacing the natural irregular disturbances with the regular permanent mechanical vibration, small uniform droplets are produced. The droplets are further processed in order to form particles by crosslinking or polymerization or other hardening process of the liquid feed.

The particle diameter can be predicted and controlled by choosing the nozzle diameter, volumetric flow and superimposed frequency.

