Air Jet Accelera-tor designed for Units – VAR D

Normally the microencapsulation process performs with a frequency between 160 and 300 Hz. In some cases you are forced to increase the frequency for process development reasons. The higher is the frequency the higher is the unwanted **coalescence, when two beads get together** as you see on the picture below (Fig.1). Beads volumes are becoming twice bigger.

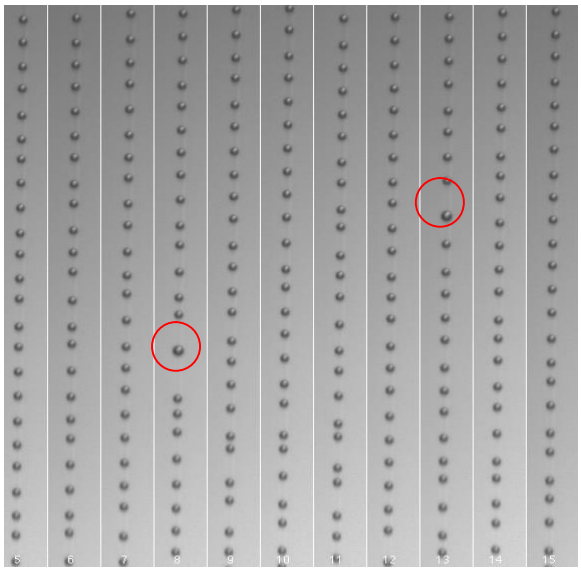

Figure 1. Coalescence

The second problem occurs when the beads are reaching the surface. If they drop in the same place, the danger of coalescence is also increasing because the following bead is coming on the previous one (Fig. 2, rights). **The air jet accelerator** is a device to overcome the problem as the beads are displaced.

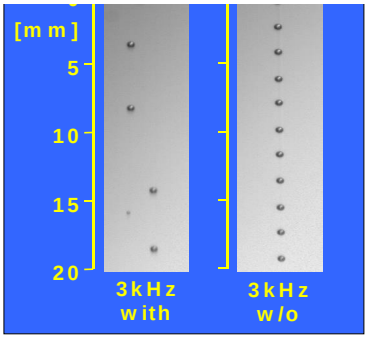

Figure 2. Lefts are beads dispersed by air jet accelerator, rights without it.

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Thus, the beads arrive at the surface on the different spots and remain separate (Fig. 2, lefts).

How Air Jet Accelerator is working?

The device works with the principle of jet dispersion and acceleration. Both effects are active at the same time and cause an increased distance between the droplets. As a consequence, you achieve less coalescence and higher monodispersity. The beads are accelerated at the height of formation where the jet breaks up into beads. The higher is the viscosity of the matrix the longer it takes (from the nozzle) until the jet breaks. To optimise the distance, we provide three different air jet devices to be used, depending on the matrix proprieties: low, normal und high (See Fig. 3).

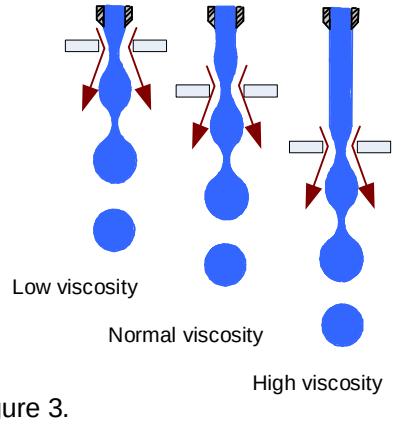

Figure 3.

The Niscoûs Air Jet Accelerator allows the production of monodisperse micro beads by minimizing coalescence both during flight as well as during submerging of the droplet into the hardening bath.