



The pellets are built-up using the air flow bed technology

# Spot-on analysis for micropellet coating

## DID YOU KNOW?

The containers of the production scale machines have a capacity of **800 litres** and are designed to handle batches weighing up to **about 600kg**.

circular plates. The homogeneous flow conditions, which are created in this way, result in a spiral, orbital product flow. The process air causes the pellets to hover, so that gentle intermixing is guaranteed and particle collisions or friction are avoided. The speed of the pellets and the distance travelled are clearly defined.

The evaporation rate can be calculated precisely and the dose rate adapted to match. The coating material is sprayed into the product from below by a central bottom spray nozzle. This nozzle is designed with a rotating spray head, which prevents the annular spraying gap from becoming blocked. The gap has an adjustable width. The spray angle can be set exactly by means of the spraying and support air and there is virtually no measurable spray loss.

The pellets pass through the liquid film regularly. Before the next coating is applied, they must sufficiently dry. The Ventilus technology allows for the regulation of moisture extraction accurately, that way the pellets are built-up homogeneously with a very small standard deviation. They're spot-on in terms of quality and process efficiency. •

▼ Romaco Innojet Ventilus V 800 processing machine in action at Acino Pharma in Liesberg/Switzerland



Ramaco – [www.romaco.com](http://www.romaco.com)

The demand for multiple unit pellet systems (MUPS) formulations, has risen over the last few years. Swiss pharmaceutical producer, Acino, was among the first to recognise this trend and today more than 90 percent of this manufacturer's pellet batches are pressed into MUPS tablets.

**M**UPS are a dosage form consisting of coated API pellets mixed with microcrystalline cellulose

and pressed into tablets. Their main characteristic is the controlled release of the active ingredient, which is achieved by applying a functional coating to the pellets. The medication is absorbed in the intestine once the tablets have dissolved in the stomach.

Since the pellets pass through the digestive cavity rapidly, MUPS tablets do not have to be taken on an empty stomach. They can be halved without losing their therapeutic efficacy. Cutting the tablets in two does not damage the sustained-release coating of the micropellets. All of this helps to improve patient compliance.

### Technological advances

Before being pressed into tablets, the pellets undergo a two-stage coating process where their weight is more than doubled. Neutral pellets made from glucose are used as starter particles. In the first step, the active pharmaceutical ingredients are applied one layer at a time, followed by the sustained-release coating.

For the past 12 years, Acino has trusted in the air flow bed technology (developed and internationally-patented by Dr HC Herbert Hüttlin) to build up these pellets. Five Romaco Innojet production machines (represented in South Africa by Integrated Packaging Systems) in the Ventilus series are installed at Acino's Liesberg facility, together with a pilot system of the same type.

The air flow bed unites all the processes, which are necessary to build up API pellets and granulates in one system.

The process air used for the air flow is controlled by the special booster – a container bottom consisting of overlapping

## FAST FACT

**AROUND 1.5 BILLION** tablets and capsules leave Acino Pharma AG's Liesberg production facility every year. Plans are underway to double volumes in the medium term.