



CELL CULTURE MEDIA

Milling, mixing, discharging & packaging.



HOSOKAWA MICRON GROUP

Process technologies for tomorrow.

CONTINUOUS PROCESSING SYSTEM FOR DRY POWDER CELL CULTURE MEDIA

Gladly supporting your growth rates.

Over the past 20 years Hosokawa has developed the expertise to provide a big variety of solutions for producing dry powder cell culture media, from a full-blown closed loop inert system that starts with pre-mixing, milling, post-mixing and ending with containment free packaging to basic gravity feed and discharge size reduction systems.

The Hosokawa Micron Group now introduces a novel, high-throughput continuous process for the manufacture of dry powder cell culture media, consisting of a pin mill combined with three-dimensional conical mixer technology.

Using Hosokawa's Vrieco-Nauta® mixing technology for pre- and post-mixing operations guarantees a gentle, uniform

and repeatable mixing process with a very high mixing accuracy, while employing our UPZ fine impact pin mill technology to produce a big variety of particle size distributions.

One of the key features of Hosokawa's cell culture media system is the flexibility we built in, whether it is inertion for explosion protection and humidity control or temperature adjustment to allow for processing of a wide range of formulations.

IMPORTANT FEATURES FOR THIS PROCESS:

- > Homogeneity
- > Control of product temperature
- > No cross-contamination
- > Cleanability



» FROM R&D TO
PRODUCTION PHASE

MILLING

The Alpine fine impact mill is used for fine and ultrafine grinding. Generally, it covers a range of approx. 20 to 1500 µm. A wide variety of grinding inserts are available for this kind of mill, enabling a high flexibility regarding products and achieved particle sizes. The rotor's ventilation effect provides a cool milling process and an end product low in fines, with good flowability.

In cell culture media preparation, the UPZ mill is usually equipped with pin discs for very fine and homogenous products up to 90% < 20 - 150 µm. Milled products have a 'steep' particle size distribution and can be mixed easily.

For special cell culture media formulation, the Alpine Contraplex pin mill can be applied, with counter-rotating pin discs and the option for cryogenic milling with LN2 cooling (down to -40 °C). The mills are designed to cGMP standards and comply

with the highest hygienic regulations. They can be provided with automated WIP systems. Characteristic features are maximum product recovery and optimum cleanability.



➤ UPZ Ultraplex fine impact mill, pharma execution

PRE- AND POST-MIXING

Hosokawa's Vrieco-Nauta® conical screw mixer is a convective mixer with high mixing efficiency. It is gentle and guarantees the highest level of mixing accuracy without product distortion.

The cantilevered mixing screw is suspended from an orbital arm, which rotates the screw along the conical inner vessel wall, causing convective mixing of particles and shear. The screw has an average speed of 70 rpm whilst the arm rotates at 1 to 2 rpm. The tip speed of the screw can fluctuate between 0.5 and 2 m/s, making it suitable for all ATEX zones.

The rotating screw conveys the product from the bottom of the vessel to the product surface. When recirculated by gravity in a conical vessel, the speed of

the particles in the downward mass flow increases as the vessel diameter decreases. These simultaneous actions result in fast and intensive mixing with low power consumption and high mixing accuracy.

To avoid cross-contamination between batches, these mixers are designed to a sanitary standard, with a semi- or fully-domed cover (welded to the vessel in one piece), purged seals and special internal finish.

Removable or fixed spray balls are mounted for cleaning the interior of the mixer. The location of the sprayers is carefully chosen to wet all interior surfaces, including the nozzles. Part of the FAT procedure is a Riboflavin test, to document the complete coverage by the sprayers.



➤ Vrieco-Nauta® conical screw mixer, pharma execution

PLENTY OF REASONS TO GIVE US A CALL



Combined advantage

The Hosokawa Group has several technology centres, each expert in one or more specific powder processing technologies. Combining this knowledge gives you the benefit of having just one supplier and contact.



Vast experience

Hosokawa has decades of experience in providing solutions for cell culture media applications. We have references all over the world, including the biggest names in the industry.



R&D/test facilities

Hosokawa has extensive research and test facilities in Germany and The Netherlands, perfectly outfitted to assist clients determining what the best system solution is for their specific process.



Worldwide service

Hosokawa has a very responsive and smoothly operating service department. Our Service Team carries out repair and maintenance services onsite or in one of our fully-equipped workshops.

More information

For detailed information and equipment and system specifications, please contact one of our offices below or visit us online.



HOSOKAWA ALPINE

Milling

HOSOKAWA ALPINE AG

Pharma Division
Peter-Doerfler-Str. 13-25
86199 Augsburg
Germany

tel. +49 821 5906-283
pharma@alpine.hosokawa.com
www.hosokawa-alpine.com



HOSOKAWA MICRON B.V.

Mixing

HOSOKAWA MICRON B.V.

Team Pharma
Gildenstraat 26
7005 BL, Doetinchem
The Netherlands

tel. +31 314 373 461
pharma@hmbv.hosokawa.com
www.hosokawamicron.nl