



FUNCTIONAL PROTEINS

Drying, milling & classifying.



HOSOKAWA MICRON GROUP

Process technologies for tomorrow.

PROCESSING ANIMAL PROTEINS

Drying, milling & classifying in one single process-step.

Animal protein products provide a wide range of commercial opportunities for companies that can manufacture them efficiently. Fish, meat by-products and leftovers are one major source and these materials are notoriously difficult to handle. They can be wet, in slurry, cake or dry form, have poor flow characteristics and cohesive tendencies. Gentle drying is essential to preserve the functionality of these delicate proteins.

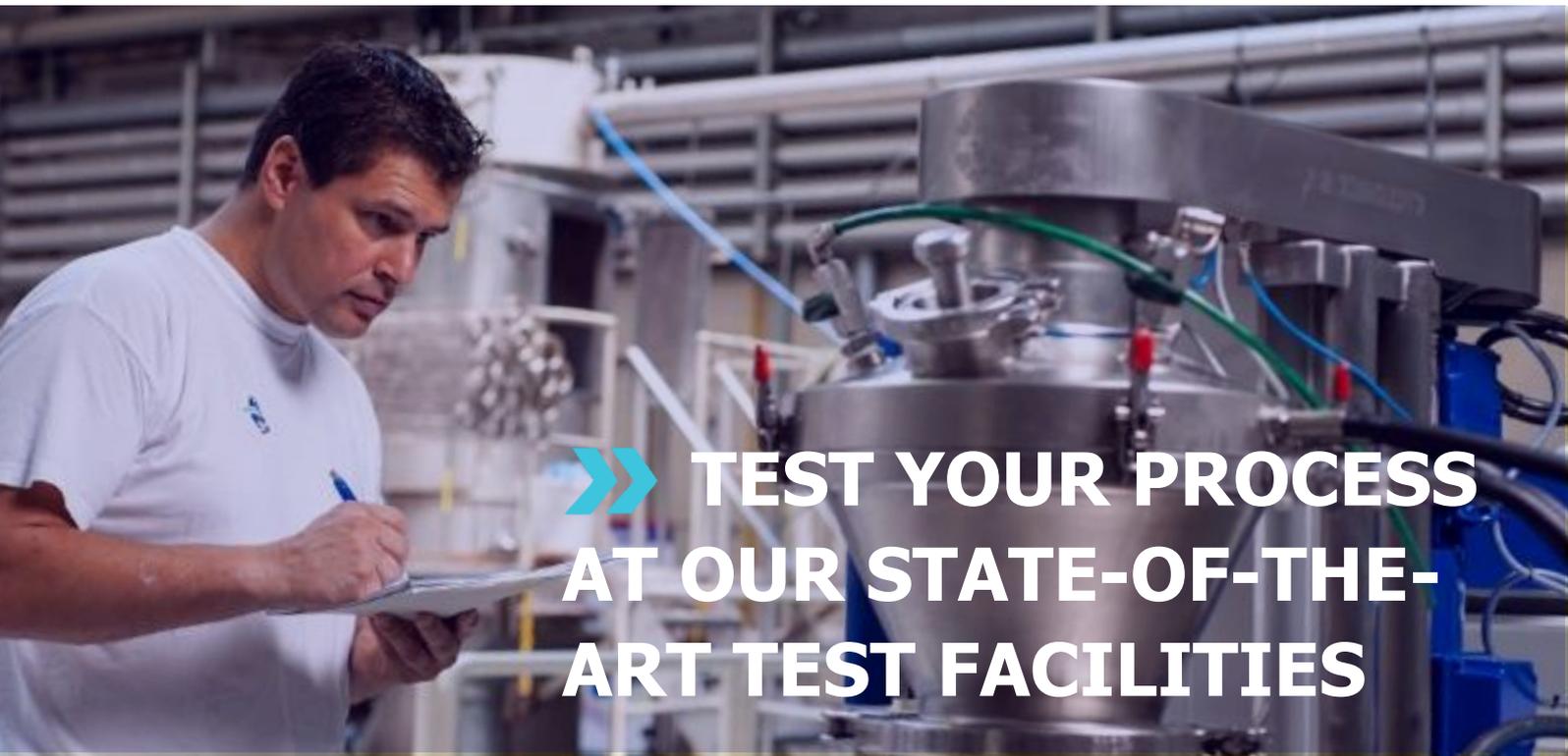
Processing animal proteins in traditional dryers tends to be a costly operation, resulting in unwanted agglomerates requiring additional milling. Most products are also temperature sensitive. When you add these difficulties to the requirements for colour and taste, it is easy to see why it is critical to choose the correct dryer.

Hosokawa Micron provides the industry with the most efficient dryer to turn these products into a high-value protein powder: the Drymeister (DMR-H) flash dryer. It combines drying, milling and classifying in one efficient process-step and it can process even the most difficult products into a fine and uniform product.

A pilot system in our state-of-the-art test facilities is available for testing as well as contract manufacturing. We are happy to help you determine the most efficient process, system or plant prior to final design. We can provide laboratory as well as production-sized trials.



> *Krill, processed into a dry powder*



» **TEST YOUR PROCESS
AT OUR STATE-OF-THE-
ART TEST FACILITIES**



> Drymeister (DMR-H) flash dryer

DRYING, MILLING AND CLASSIFYING IN ONE PROCESS-STEP

The Drymeister (DMR-H) flash dryer is the first drying system of its kind to be patented anywhere in the world. It was developed to combine drying, de-agglomeration/milling and classifying in one piece of equipment. It can dry temperature-sensitive products safely, even under increased temperatures, in a matter of seconds!

The Drymeister® can handle moisture content fluctuations from a few % up to more than 80% in suspensions, slurries,

pastes, dough, filter cakes and wet powders. It requires 75% less space and uses about 30-40% less energy per kilogram of evaporated water than traditional drying systems.

The Drymeister (DMR-H) can transform damp feed material into an ultrafine powder with an extremely narrow particle size distribution in a matter of seconds, making it a more economical alternative to spray and other dryers.

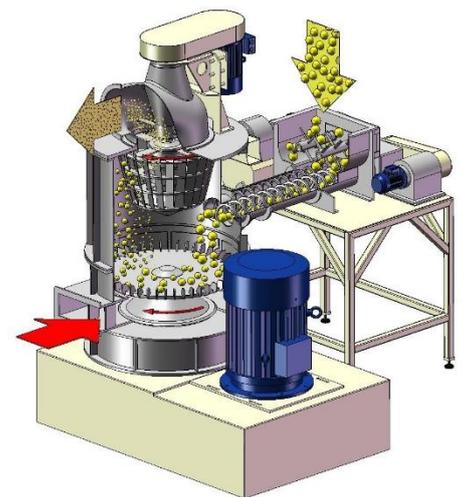
Working principle

The wet material is fed through customised feeding systems into the grinding and drying section of the dryer's main body. The grinding rotor disperses the wet material into very fine particles and they are fluidised in the grinding chamber by temperature-controlled, hot gas.

The system is kept under a negative pressure by the exhaust fan and the surface area of the product is increased enormously so that water (or other solvents) is evaporated instantaneously.

The dry and fine particles are conveyed with the gas stream to the top section of the dryer where a separator classifies the particles by size. Then the particles are conveyed with the exhaust air to a powder air separating system such as a cyclone, cyclone filter or cyclone scrubbers.

Process parameters like classifier speed and outlet temperature can be adapted to control moisture content and particle size of the end product.



> Drymeister (DMR-H), working principle

Key features

> **Easy access**

The Drymeister (DMR-H) offers excellent accessibility for cleaning, inspection or maintenance inside the dryer.

> **Ultra fine regular end product**

The Drymeister (DMR-H) can produce ultra-fine powders from suspensions, slurries, pastes, filter cakes and wet powders.

> **High evaporation capacity**

The combination of high ΔT with good dispersion of the wet product in the gas enables the Drymeister (DMR-H) to evaporate large quantities of liquids in a short amount of time. It can transform damp feed material into an ultrafine powder with an extremely narrow particle size distribution in a matter of seconds.

> **Very (energy) efficient**

The Drymeister (DMR-H) uses less thermal energy per kilogram of evaporated water; it simplifies the process; reduces operational costs, and is environmentally-friendlier than its traditional equivalents.

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 functional protein processing. 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 Doetinchem, 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 our office or visit us online.



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