Case study: Drying Food Additives

Application :
Food additives such as CMC and Alginates are extremely difficult to grind and have a fibrous structure meaning that substantial amounts of energy are required for size reduction using conventional methods.

However when the material is in wet condition and is grinded and dried simultaneously the energy consumption can be reduced considerably.

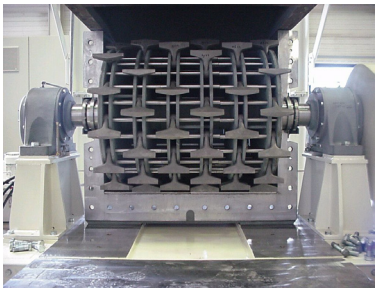
The **present production lines** for producing CMC and Alginates are usually consisting of rotary dryers or flash dryers combined with a separate milling system.

Hosokawa Micron solution combines a centrifuge with a **Micron Dryer Model MDH-4**.

Requirements product

Moisture content	:	in a range of 8 to 12% W.B.
Particle size distribution	:	dust free from 200 to 1000 µm

Energy for grinding
Special rotor construction with strong hammers enabling to generate larger quantities of
ENERGY resulting in ultra short residence time of product in the dryer and this has positive impact on the quality of the product.


Detail of grinding rotor

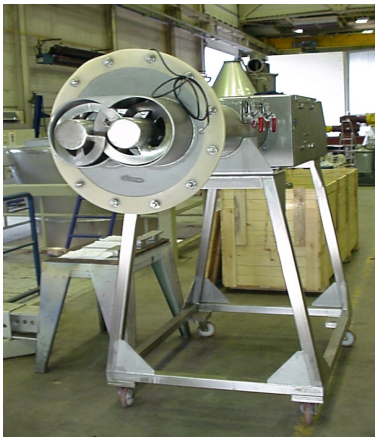
Solution:
Products as CMC and Alginates can be very viscous and have a sticking nature.For a powerful dispersion of such feed material a Micron Dryer with hammer-rotor and classifier give a correct particle size distribution and a dry and uniform product.

Process data

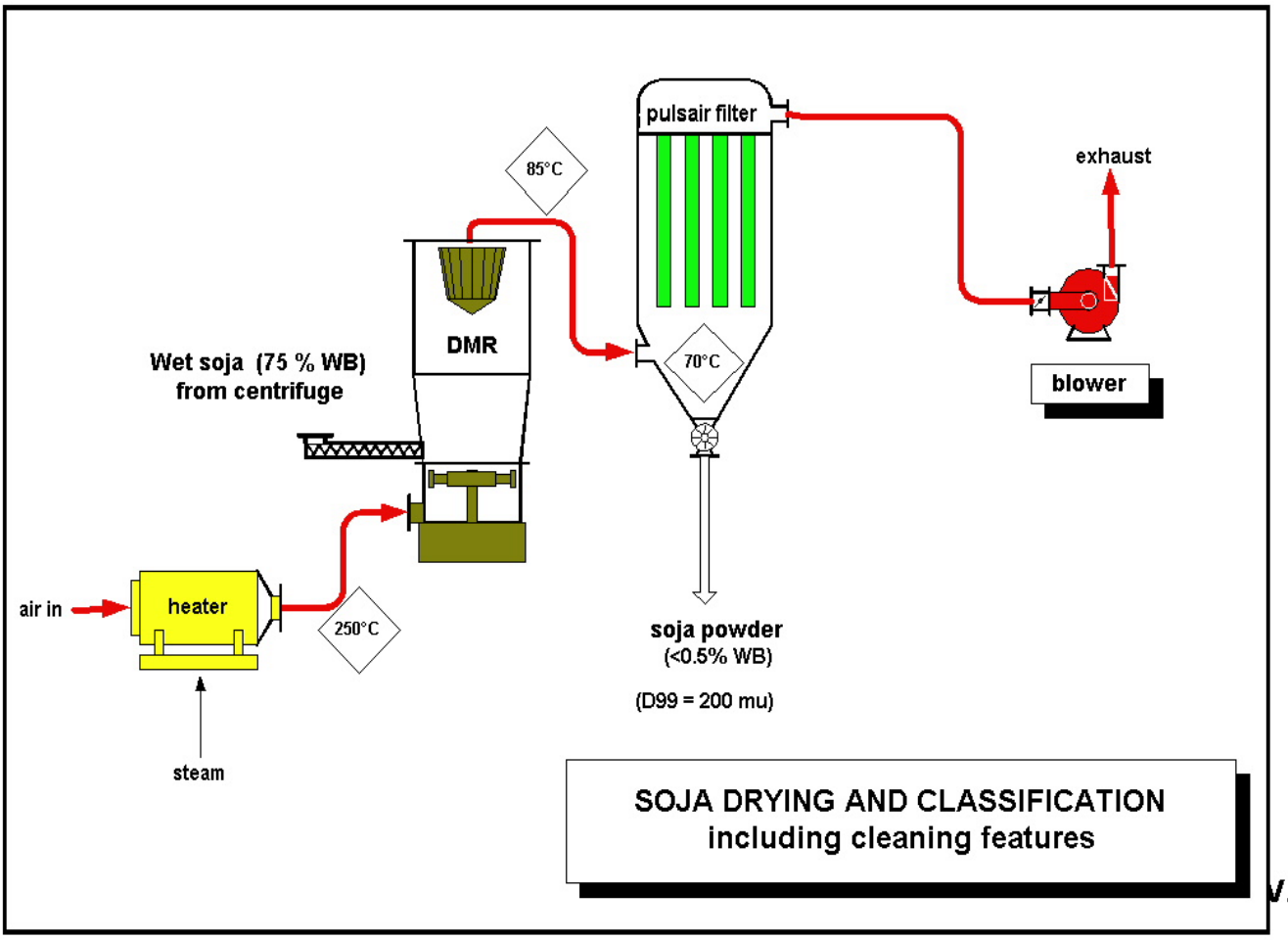
Model Dryer	Feed material	Input capacity Kg/hr	Moisture content Raw material	Moisture content Product
MDH-4	CMC	1000	40%	8%
MDH-4	Alginate	500	70%	12%
MDH-3	Alginate	300	70%	12%
MDV-5	Soja	1500	72%	5%
MDH-1	Starch	50	60%	10%

Cleaning
This is an important aspect and plant configuration and design of components has to be such to enable easy dismantling and cleaning. Specially parts in contact with the wet and cohesive raw-material requires attention.

For this kind of application movable feeding devices connected with quick clamps are applied which will minimise down-time during cleaning cycle.



Conclusion
The Micron Dryer is a **reliable** machine for drying and simultaneously grinding of food additives It is a **very stable** process resulting in a uniform and dry product in a one step process.



Typical flow sheet of Micron Drying System for food additives