



STARCH POWDER

Mixing & hydrothermic treatment.



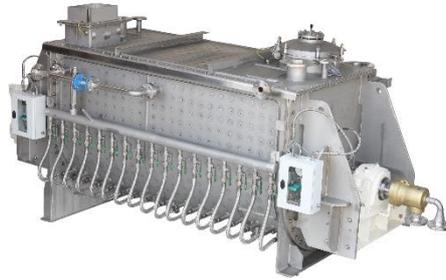
HOSOKAWA MICRON GROUP

Process technologies for tomorrow.

HYDROTHERMIC TREATMENT OF STARCH

Dextrinization by indirect drying and heating.

Starch is used in many applications in various industries. Most commercial starch is made from corn, wheat, tapioca or potatoes. Commercial starch is obtained by crushing or grinding starch-containing tubers or seeds and then mixing the pulp with water. The resulting paste is freed of impurities and then dried. Hosokawa Micron offers a number of process technologies to meet industry demands.



> 'Torusdisc' indirect contact dryer

The Torusdisc continuous, indirect contact dryer is very suitable for starch dextrinization. It consists of special, heated discs within a cylindrical jacketed housing which rotate in the product. The typical temperature in the rotor is up to 150°C, reducing the moisture content of the material in one single step from about 20% down to 2-5% fine powder.

INDIRECT DRYING & HEATING

Starch processing often includes dextrinization, where (pyro) dextrins are produced from starch by applying dry heat under acidic conditions (pyrolysis or roasting). During roasting under acidic conditions the starch hydrolysis and short chained starch parts partially rebranch to the degraded starch molecule.



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

The next step in the process is to heat the material in an agitated reactor and then the structure and colour can be modified we can see the effect which is obtained by this roasting process.

Batch agitated roasters are available in various configurations and can be manufactured in any size from a few litres up to 50 m³ or even larger. Suitable types of agitator for this process are the screw agitator and the paddle agitator.

MIXING & DIRECT DRYING

A suitable process solution for mixing and drying of starch combines a Nauta® conical screw mixer with a heating jacket and a Drymeister (DMR-H) mill dryer.

Starch with an average moisture content of 4% is loaded in the Nauta® mixer. The starch is mixed with steam and cooked for 20-40 minutes (adjustable). The moisture level in the flour is increased from about 4% to 15%.

After cooking, the mixer is quickly unloaded into an intermediate hopper with heating jacket. The material is directly transported into the Drymeister (DMR-H) mill dryer, in which the product is milled and dried within a few seconds into a fine dry powder.



> Nauta® conical screw dryer



> CPD paddle dryer

STEAM INJECTION & VACUUM DRYING

In another possible system set-up, starch is loaded in a batch agitated reactor and then heated up and mixed with steam during a certain period. By adding the steam, the moisture content rises and when the steam injection is completed, the starch is dried by reducing the pressure in the reactor using a vacuum pump.

TESTING & TOLLING

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.



> Drymeister (DMR-H) flash dryer



Base material



24 hours



48 hours

> Corn starch, before and after thermal treatment

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 starch 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.



HOSOKAWA MICRON B.V.

HOSOKAWA MICRON B.V.

Team Food
Gildenstraat 26
7005 BL Doetinchem
Netherlands

tel. +31 314 373 463
food@hmbv.hosokawa.com
www.hosokawamicron.nl