



## **PROTEIN FROM FISH REMAINS IN THE FOOD INDUSTRY**

Protein rich fish remains once considered as waste or used as animal feed, can now be used in the food industry after heat treatment and sterilisation using the Hosokawa Drymeister DMR.

The Drymeister DMR incorporates steam drying and flash drying processes to offer cost effective, single step processing from wet slurry or cake of pre-ground fish remains to dry sterile powder.

Based on the established range of Micron Dryers, the Drymeister achieves evaporation rates up to 5-6 tons per hour on slurries and liquids.

The Drymeister operates by atomising the wet particles in a hot gas stream. Whilst most flash dryers operate with hot air, or nitrogen for inert operations for flammable or explosive products, the flash drying process developed by Hosokawa incorporates the use of superheated steam as the heat source, effectively replacing nitrogen as the inert gas.

Superheated steam (when steam is heated to 100°C at atmospheric pressure) has drying capabilities when used and cooled down to a temperature just below 100°C and offers several benefits including sterilisation capabilities, energy savings and no product oxidisation.

Energy savings can be up to 50-70% compared to conventional systems as steam has 1.8 times more heat capacity than air and as a smaller amount of carrier gas is required, auxiliary equipment size can be reduced.



Short product residence times maintain the product quality with the elimination of oxidation and as the steam purged from the steam drying system is condensed without emission and as most germs and bacteria are destroyed by superheated steam, plant odour is minimalised.

The use of steam within the drying system means that not only are risks from fires and explosions eradicated but also that specific measures to meet ATEX requirements do not need implementation.

A small pilot plant is available for product tests, fully supported by the technical team at Hosokawa Micron to ensure customer requirements are met and that product specifications are achieved.