



New Stirred Freeze-Drying Technology

According to Hosokawa Micron, its stirred freeze-drying technology is set to revolutionise freeze-drying of even the most sensitive and precious products, with a single-step solid to gas stage that removes the liquid without changing the product structure. Ideal for drying applications such as the production of probiotics, pharmaceuticals and nano materials, where demand for pristine, undamaged final product is



essential, stirred freeze-drying offers final products with good shelf stability and which remain unchanged

after reconstitution. Conventional freeze-drying systems of the tray dryer type are typically slow, with a low heat transfer rate due to stationary material, and manually intensive, as trays of material have to be filled and discharged by hand. In this type of drying, the product layer often forms a single piece of hard baked material, which has to be crushed after freeze-drying and this step can lead to damage of the product structure. Hosokawa Micron's stirred-freeze drying technology, which incorporates the use of a jacketed and stirred Vrieco-Nauta conical vacuum dryer, operated at low temperature and pressure, produces a lump free, free-flowing, freeze-dried product. As the material is constantly in motion, stirred freeze-drying offers increased heat transfer rates, which shortens the drying time. The final freezing stage is simplified because it can be carried out in the same vessel.