

Test and Development Centre

for Food and Dairy Products and Plants Operating on Small Industrial Scale



Test Site

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Powder trials in industrial size scale

Take the opportunity to optimise the development of new milk powder, infant formula and other contract manufactured powder products. At Arla Foods Ingredients, we have a pilot-scale spray drying plant comprising the very latest technology.

A joint venture between Arla Foods Ingredients and Niro A/S, Denmark has resulted in the installation of a new pilot plant including a new type spray dryer. The Integrated Filter Dryer - IFD™ - is situated in a new building along with the necessary pre-treatment equipment at ARINCO in Videbaek, Denmark.

The dryer produces realistic, flexible, and cost-effective trials at customers' convenience. The dryer enables you to make smaller scale tests under conditions identical to an industrial production. Schedules for production trials can now be booked and conducted at customers' convenience and, after each test, any necessary adjustments made to the formulation. The pilot plant is quick to adapt and prepare for further test runs.

Analytical tests are possible at the site, resulting in a much more flexible customer service.



Spray dryer chamber with special insulation panels.



Integrated fluid bed and sieve



Integrated filters

Auxiliary equipment

- Heat exchanger
- LSI - direct steam injection
- LCI - carbon dioxide injection
- Mono pump
- Weighing scales
- Bag filling direct from dryer into big bags or container
- Filling in pouches or cans (optional)

Main features and benefits

- Saves up to half the time and costs compared with trials run on commercial-scale production lines.
- Rapidly adapts to new trials – up to 2 or 3 a day, depending on the composition and powder mixing.
- Enables tests of sensory properties, shelf life and powder qualities, such as solubility, flowability, particle size and denaturation.

Highly qualified operators

Our technicians are highly skilled in the manufacture of special powder products. Working with customers, they share their expertise and ensure production trials are accurate and efficient - generating valuable data that can be used in further development work.

Due to the high standards of hygiene, visitors are required to wear a white coat, hat and over-shoes before entering.

Test centre

The test centre has a laboratory to analyse the powders and a conference room where calculations can be made and test results discussed.

In addition to the modern control room, which monitors the entire production process, the plant comprises the following equipment on pages 4-7.



Process control room



Conference room



Analysis laboratory



Conference room

Tank for liquid raw materials

Capacity: 100 tons

Cooling tanks

Two cooling tanks
Capacity: 7 tons

Evaporator

Two-stage falling film evaporator with thermo compressor.

Homogeniser

from the mixer tank; products can be passed through a single stage homogeniser if required.

Plate heat exchanger

Capacity: 12,000 litres/hour for heating and cooling the product. Feed heating: 3,500 litres in 30 min. (20 – 70°C)
Cooling: approx. 45 minutes.

Wet mix tank

with insulated jacket for 3,500 litres of liquid product and turbo mixer.

Feed tank/batch

The finished mix is pumped into two 2,500 litres feed tanks.

High-pressure pump

with two-stage homogeniser.
Capacity: 300-1,000 litres/hour.

Integrated Filter Dryer, IFD™

fully equipped, modern spray dryer with integrated CIP-able filters and a fluid bed. The product can be atomised using a rotating wheel or nozzle. Water evaporative capacity: 300 kg/h. The fluid bed is equipped with the special BUBBLE PLATE™, which is sanitary and ensures a good emptying effect. To reduce noise to a minimum, a sanitary CIP-able sound attenuator - SOUND CIP™ is installed on the exhaust system.



Cooling tank



Plate heat exchanger



Feed tanks



High-pressure pump



Wet mix tank



Spray dryer, type IFD™

Process overview

1. Milk reception
2. Cooling tank system
3. Raw milk tank
4. Evaporator

5. Wet mixing
6. Feed system
7. Spray dryer
8. CIP system

