



Product Development Centre Powder solutions

Gorredijk, The Netherlands



Introduction

The Powder Solutions PDC at Tetra Pak in Gorredijk is a fully equipped, recently refurbished and modernised pilot plant, sized for industrial up-scaling of food powder products. The renewed laboratory, under the same roof, provides all necessary analyses to control the process during the trial, as well as powder analyses of samples.

Companies world-wide know what product functionalities their clients require, but it is not always easy obtaining these properties in practice. In the PDC you can work together with experienced Tetra Pak food technologists and engineers, to develop and optimise the production process for your (new) powder products.

The facility has all necessary mixing, heating, evaporation, and drying equipment for industrial trials on a variety of product types:

- Infant Formula
- Milk powders (SMP, WMP, HFFWMP, BMP, MPC)
- Whey products (SWP, Demineralised Whey, Permeate, WPC's, WPI)
- Plant based proteins
- Carbohydrates (Starch (SprayCooking® process), Maltodextrines)
- Any other food products

Possible objectives for Customer trials

- Develop and test new products and processes
- Up-scaling of new recipes
- Improve and optimise existing products
- Optimise performance
- Producing application samples
- Research into new food types (e.g. plant based proteins)

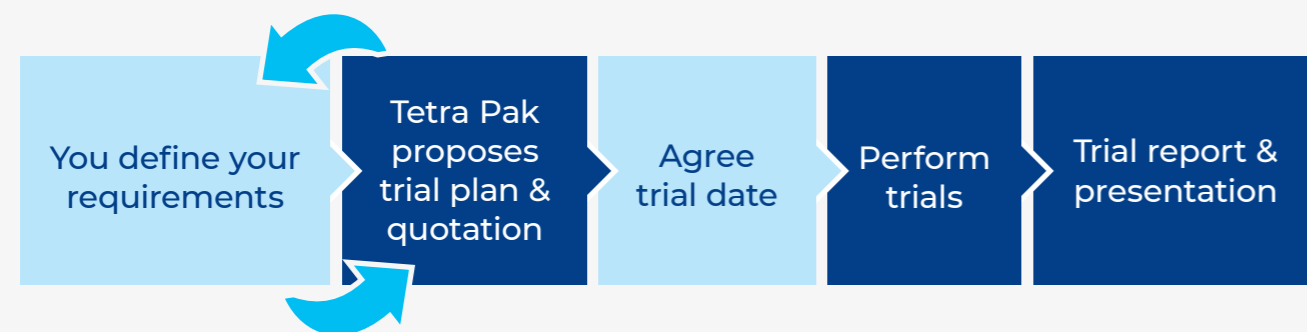
Other site facilities

- 10 person main meeting room - equipped with the usual IT provisions
- Additional guest meeting room for break-out work/other activities
- Small self-serve canteen

How to organise a test?



When you consider an industrial trial for any powder food application, you can contact your local Tetra Pak representative or contact the PDC Sales directly *(details at back of this brochure)*.



Key equipment data

PreHeating

- Tubular Preheater 1 **Max. 40° C**
- Tubular Preheater 2 **Max. 90° C**
- Direct Steam preheating **Max. 120° C**

Capacity ranges

- TVR Evaporator - Evaporation **100-120 kg/hr**
- Wide Body Dryer - Evaporation **120-450 kg/hr**
- Wide Body Dryer - Air Temp **140-230° C**
- Tall Form Bustle Dryer - Evaporation **70-100 kg/hr**
- Tall Form Bustle Dryer - Air Temp **175-200° C**
- Atomisation pressure **250 bar**

Powder capacity

- Wide Body Dryer **100-550 kg/hr**
- Tall form Bustle Dryer **80-150 kg/hr**

Capacities depend on product properties.

Main PDC Lab analyses

PROCESS

- Viscosity
- Total solids
- Brix
- pH

POWDER PROPERTIES

- Moisture content
- Bulk and particle density
- Particle Size Distribution
- Solubility, dispersibility, wettability
- Cakiness and hygroscopicity
- Free fat content
- Sticky point curve
- Scorched particles
- White flecks number
- Baby Bottle Test





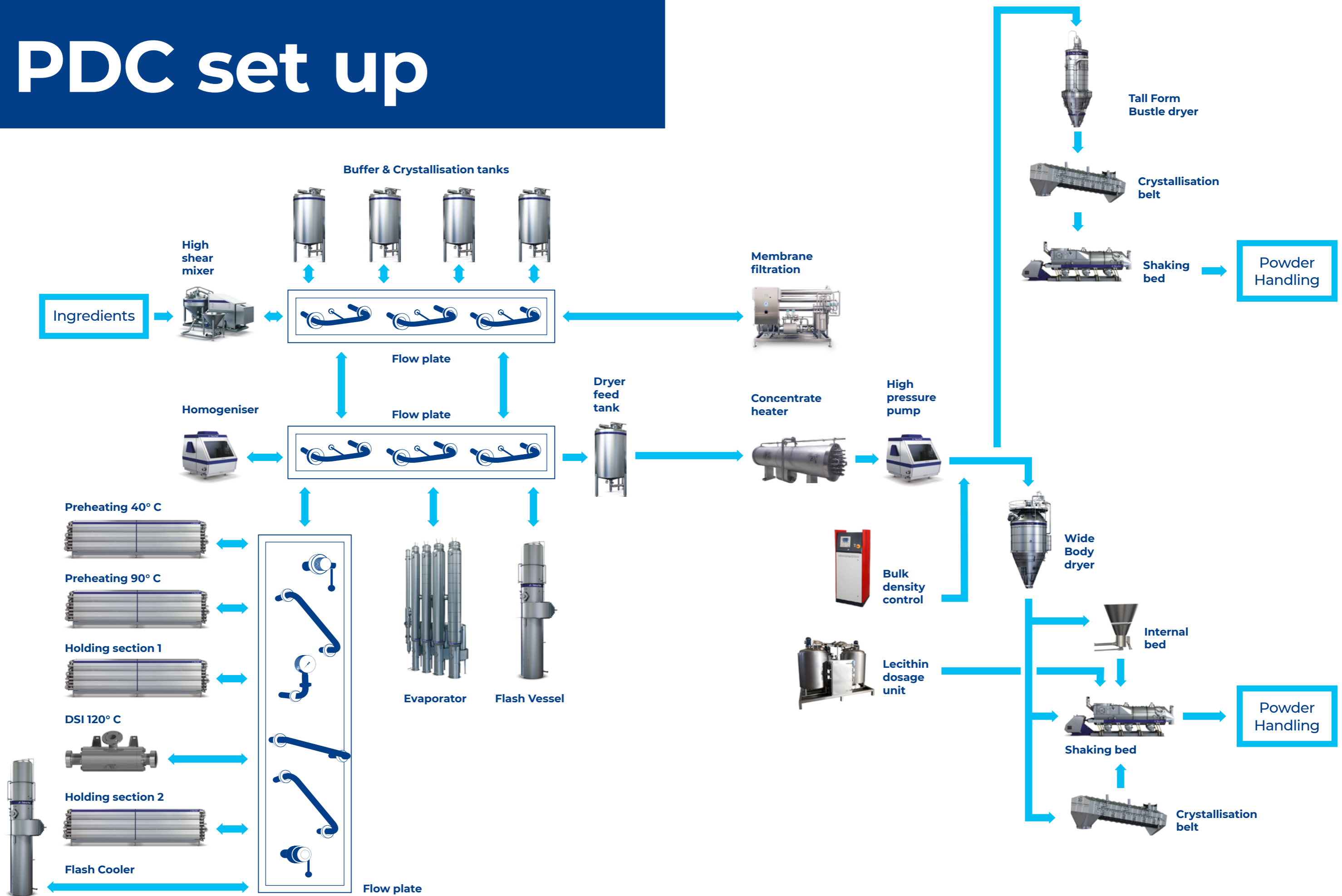
Capabilities

Separation	Heating	Mixing & Blending	Filtration	Evaporation	Drying	Powder Handling
Nutritional / Infant Formula Powder Line Solutions						20kg Packing
Dairy Powder Line Solutions						20kg Packing
	Demineralization	Hydrolysis	Whey Powder Line Solutions		Crystallisation	20kg Packing
Plant Based Proteins						20kg Packing
Starch Products						20kg Packing

Various Line Option examples

	Mix Pre-preparation	Buffer-tank 1	Homogenising	Tubular Heater 1	Tubular Heater 2	Direct Steam Injection	Buffer-tank 2	Filtration / Evaporation	Flash Cooling	Tubular Cooler	Buffer-tank 3 / Crystallisation	Buffer-tank 4	High Pressure Pump	Spray Drying	Powder Handling & Packing	
Starch products	A	█														
	B	█		█												
Infant Food products	C	█		█	█	█										
	D	█		█	█	█										
	E	█		█	█	█										
	F	█		█	█	█	█	█								
Crystallised and non-crystallised products	G	█		█	█	█	█	█	█							
	H	█		█	█	█	█	█	█	█						
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PDC set up





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