Tetra Tebel Casofill® GDL

Process line for white cheese types

Pre-treatment

GDL module 1

GDL module 2   GDL module 3   Filling and storage

Intermediate storage at 40 °C   Cold storage 5–7 °C

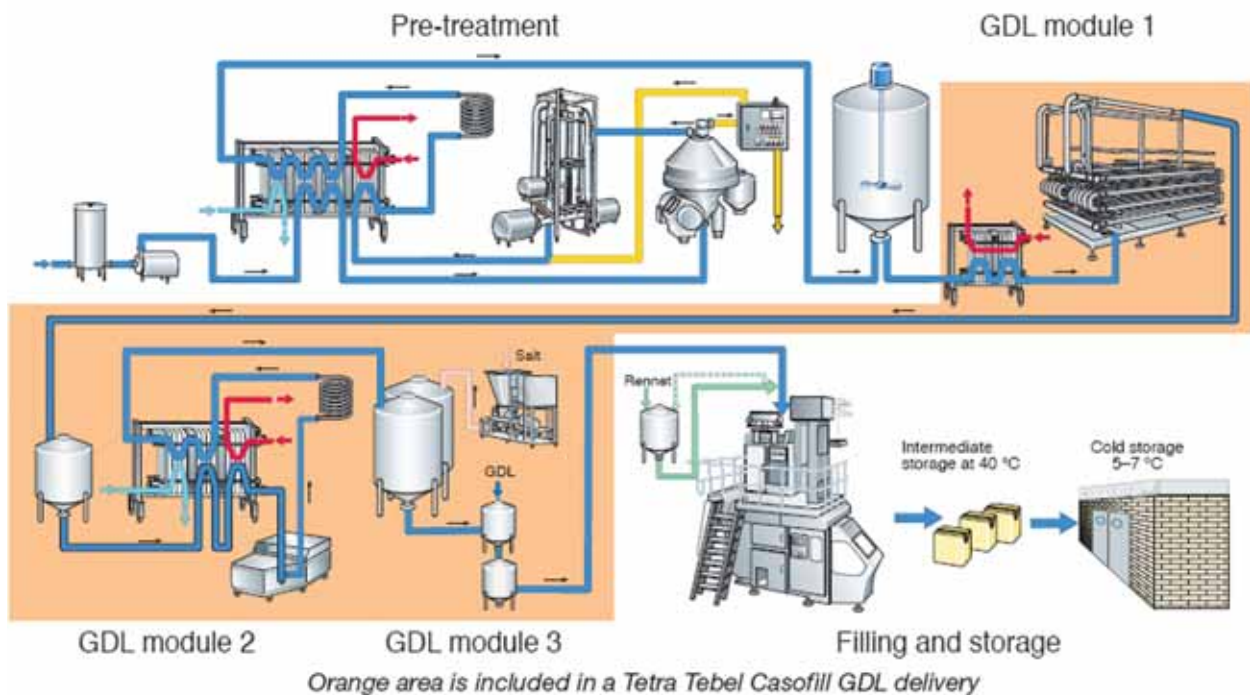Orange area is included in a Tetra Tebel Casofill GDL delivery

Highlights:

- Long shelf life due to hygienic process
- Higher yield compared to traditional Feta process
- Cheese ready after final cooling
- Multiple packaging options

Application

The Tetra Tebel Casofill GDL is a process line for the semi-automatic production of UF white cheese types using Glucono Delta Lactone (GDL).

The process line consists of three basic modules:

Module 1 Ultrafiltration
Module 2 Pasteurisation and homogenisation
Module 3 Salt mixing, GDL dosing and filling

The process line will be delivered with a basic recipe for the production of the GDL Feta.

Working principle

Standardised and pre-treated milk is pumped to the plate heat exchanger in the Tetra Alcross ultrafiltration module. The milk is heated to 50 – 52 °C, before entering the UF loop. The milk is concentrated approx. 5 times to a final total solids content of 36 – 39 %, hereafter called retentate.

The permeate is used in the regenerative section of the plate heat exchanger for heating the incoming milk from 7 °C to UF temperature. At the same time the permeate is cooled down to below 7 °C, for possible further processing.

The retentate is pasteurised and homogenised at 75 – 80 °C in a specially designed pasteurisation module.

After pasteurisation the retentate is cooled down and pumped to one of the salt mixing tanks where the required amount of salt is added.

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When the total amount of salt is well mixed into the retentate, the filling of the upper tank of the GDL mixing unit starts. After the GDL powder is properly mixed in the upper tank, it is repeatedly emptied to the lower storage tank (300 - 500 l).

When the filling machine starts running, the liquid filled cheese will be pumped from the lower storage tank to the filling machine. During filling, rennet is dosed in-line.

The pre-cheese is filled in a liquid state in the Tetra Brik Aseptic packages and coagulates in the package within 20 minutes.

The cheese is stored at room temperature over night. The next day the firm packages are transported to a well ventilated cool store and are cooled down to below 7 °C.

The cheese can be consumed right after final cooling.

Capacity

Standard milk inlet capacities to the ultrafiltration plant are 6.500 l/h. Other capacities on request.

Standard scope of supply

- Tetra Alcross US Ultrafiltration plant
- Siemens-based PLC control system for UF
- Tetra Therm Lacta GDL pasteuriser
- Tetra Alex homogeniser
- Salt mixing tanks
- Salt dosing unit
- Valve cluster and piping for filling line
- GDL dosing and mixing unit
- In-line rennet dosing equipment
- Documentation

Options

- Platform for salt dosing unit
- Platform for incubation tanks
- Refractometer
- Automatic CIP dosing for module 1
- Container with dosing pump for CIP of module 2

Technical data

Consumption data valid for Tetra Tebel Casofill GDL for 6.500 l/h milk inlet

Steam	Nom - max kg/h at 3 bar
Module 1 Tetra Alcross	150 - 900
Module 2 Tetra Therm Lacta	20 - 50
Moudle 3 Salt, GDL dosing, mixing, filling	75 - 200
Electric power	**Main 230/400 V, 50 Hz, kW**
Module 1 Tetra Alcross	68 - 96,5
Module 2 Tetra Therm Lacta + Tetra Alex	8 + 5,5
Moudle 3 Salt, GDL dosing, mixing, filling	24
Instrument Air	**N l/h**
Module 1 Tetra Alcross	5.000
Module 2 Tetra Therm Lacta	500
Moudle 3 Salt, GDL dosing, mixing, filling	600
Cooling/ice water	**l/h**
Module 1 Tetra Alcross	up to 1.900
Module 2 Tetra Therm Lacta + Tetra Alex	2.250 + 50
Moudle 3 Salt, GDL dosing, mixing, filling	15.000
CIP water supply	**l/h**
Module 1 Tetra Alcross	40.000
Module 2 Tetra Therm Lacta + Tetra Alex	2.000
Moudle 3 Salt, GDL dosing, mixing, filling	20.000
Sealing water	**l/h**
Module 1 Tetra Alcross	160
Module 2 Tetra Therm Lacta	100
Moudle 3 Salt, GDL dosing, mixing, filling	200

Dimensions for installation

Required floor space is 225 m²
Required maximum height is 7 metres

Tetra Pak