Process Description

After pre-treatment, the whey is concentrated in a UF system to produce WPC 60. The WPC 60 is then treated by the APV LeanCreme™ microparticulation process before entering the cheese plant.

### Compositions

**Cheese Whey**
- **TOP**: 0.80%
- **LAC**: 4.49%
- **ACD**: 0.15%
- **ASH**: 0.50%
- **FAT**: 0.06%
- **TS**: 6.00%

**Permeate**
- **TOP**: 0.22%
- **LAC**: 4.57%
- **ACD**: 0.15%
- **ASH**: 0.48%
- **FAT**: 0.00%
- **TS**: 5.42%

**Retentate**
- **TOP**: 10.08%
- **LAC**: 4.15%
- **ACD**: 0.14%
- **ASH**: 0.76%
- **FAT**: 1.00%
- **TS**: 16.13%

**LeanCreme Product**
- **TOP**: 10.08%
- **LAC**: 4.15%
- **ACD**: 0.14%
- **ASH**: 0.76%
- **FAT**: 1.00%
- **TS**: 16.13%

**Permeate**
- **TOP**: 0.22%
- **LAC**: 4.57%
- **ACD**: 0.15%
- **ASH**: 0.48%
- **FAT**: 0.00%
- **TS**: 5.42%

**Retentate**
- **TOP**: 10.08%
- **LAC**: 4.15%
- **ACD**: 0.14%
- **ASH**: 0.76%
- **FAT**: 1.00%
- **TS**: 16.13%
**PROCESS FEATURES**

- The APV Shear Agglomerator (ASA) is a groundbreaking scraped surface heat exchanger designed specifically to create the unique functionality of APV LeanCreme™ microparticulated whey protein
- Single step microparticulation of whey proteins with combined heating and shear in the ASA
- Precise control of degree of denaturation and particle size distribution
- Up to 8 hours of running time before cleaning
- Low fouling
- High consistency and reproducibility

**PROCESS ADVANTAGES**

- Flexible process enabling the use of a wide variety of types and grades of WPC from WPC 28 to 80, including evaporated WPC
- Enables customisation of APV LeanCreme™ product for specific customer processes and special cheese characteristics
- Very short pay-back time
- Unmatched numbers of industrial references

**APV LEANCREME™ IN CHEESE**

- WPC 60 is recommended for cheese production
- LeanCream products can be used for EPC, pressed, semi-hard and fresh cheeses
- The customised APV LeanCreme™ product is added to the cheese milk before pasteurisation
- Level of addition: 2 – 8% v/v APV LeanCreme™ product, depending on fat content in the cheese
- Impact on cheese making:
  - Up to 85% microparticulated whey proteins trapped in the cheese
  - Increased yield
  - Increased water-binding properties
  - Enhanced cheese sensory properties
  - Easy to cut and handle in prepress
  - Meltability preserved

The APV LeanCreme™ Team is ready to provide expert technology and application support. You can also take advantage of a short-term project agreement with our Innovation Centre in Silkeborg, Denmark, in order to ensure successful piloting of your new APV LeanCreme™ process.