

STRETCHING[®]

of cultured dairy products

with YTRON-Z



The application

Various influences during production can lead to significant product quality fluctuations and defects in cultured dairy products. A multitude of unavoidable reasons such as temperature change, pH change and mechanical disruption may be the reason. The result is a 'gritty' structure, syneresis and a lack of viscosity as well as fluctuations in viscosity.



The previous process

The original method used to smooth the yoghurt was 'stirring' of the product in the incubation tanks. This means to apply a significant amount of shear force. The shear sensitive gel gets damaged and the viscosity is decreased. It is also not guaranteed that all "grits" are destroyed. This process also leads to the introduction of air which in turn causes oxidization and "off-flavours".

Other methods used include is the use of "smoothing valves". The grittiness of the product is reduced or avoided with this method. However a negative side effect is the significant loss of viscosity. In the worst case, due to pressure fluctuations towards the end of the process, some grits pass through the valve ending up in the final product. The ideal setting is based on the "feeling of the operator" and is therefore not reproducible.

Another method utilised is the use of inline sieves or strainers. The results are acceptable, but an acceptable creaminess is normally not achieved. Limitations in operating time limit production, some product is lost and cleaning of the system may be problematic.

The solution

STRETCHING[®] of cultured dairy products is the ideal method of reproducible processing with a defined introduction of shear using the tailor made and geometrically optimised, slotted rotor/stator system. Depending on the application, a single, double or triple stage rotor/stator set is used, each consisting of a pair of triple-row shear toolings. With the parameters of slot width, number and distance of the shear slots, number of the rotor/stator sets used, rotational speed and flow rate, the desired shear effect will be reliably adjusted for all types of cultured milk products.



STRETCHING[®] with YTRON-Z gives:

- significant increase in stability and viscosity of the gel
- a complete elimination of syneresis
- a product free of grits
- 100% reproducibility

The end result is a full-bodied product with a rich, smooth mouth-feel.



YTRON-Z mobile execution



YTRON-Y with ByPass option



YTRON powder dispersion unit

YTRON Process Technology GmbH & Co KG produces high quality, extremely efficient process components for a variety of applications in the dairy industry, e.g.:

-Homogeneous mixing of fresh milk in road tankers or milk silos in only a few minutes without air entrainment with the YTRON-Y.

- Highly efficient dispersing of powders including the most difficult to wet powders such as protein isolates are efficiently dispersed in a single pass using the YTRON-ZC.

- Quick and 100% homogeneous mixing of rennet and other culture media within a few seconds using YTRON-Y.

STRETCHING® of dairy products after incubation or separation, leads to a smooth, creamy structure, increased water binding activity and thus avoiding syneresis. In many cases, it enables the user to significantly reduce the amount of solids used. The efficiency of solids such as hydrocolloids used is optimised due to their perfect dispersion, therefore the maximum yield is reached.

Mixing of fruit preparation with white base in the hygienic YTRON-Y mixing cell means the gentlest processing without damaging of the fruit structure.



- Homogeneous, air-free, quick and gentle mixing of the product after incubation using the YTRON-Y. An advantageous side effect is the CO₂ de-gassing effect, resulting in a fresh taste of the final product.

When feeding a separator, the homogeneous mixture means that no adjustment is necessary for that batch. The protein losses are reduced to a minimum.



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