

Turbidity Measurement Dairy Industry

Operating Floor

In the operating room, the first processing step is taken in the milk processing. Here, the product is separated from the delivered raw milk via separators into the components and then brought together again standardized. In addition to the methods previously used, turbidity meters are used for input and output determination and control. This allows a much faster and more efficient determination.



Top view of an operating room

Principle of standardization

Cream and skimmed milk from the separator have constant fat contents, provided that all parameters remain constant. The principle of standardization, whether manual or automatic, is illustrated in Fig. 6.2.32.

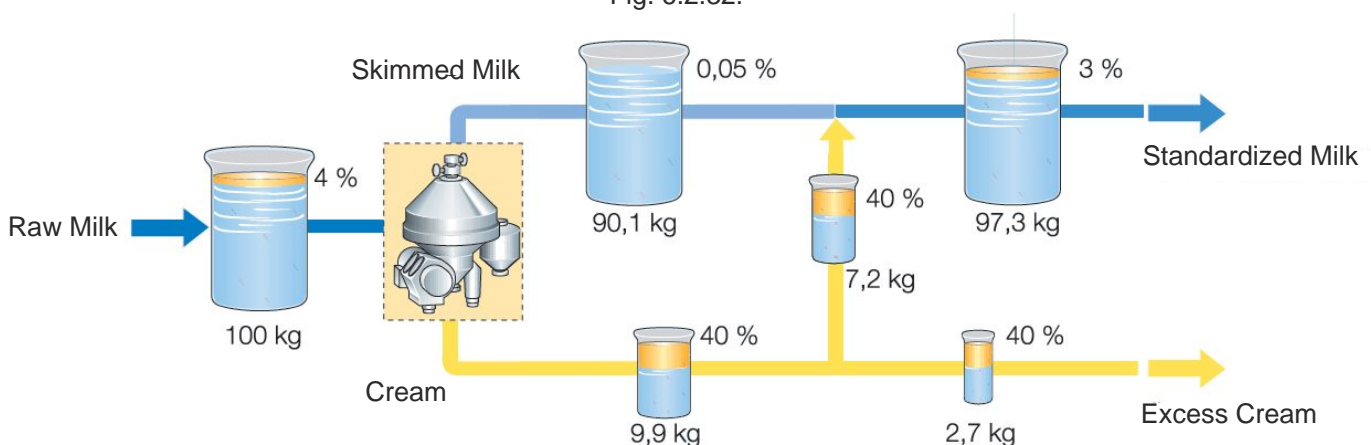


Fig. 6.2.32 Principle of the fat content adjustment Page1

Application Example



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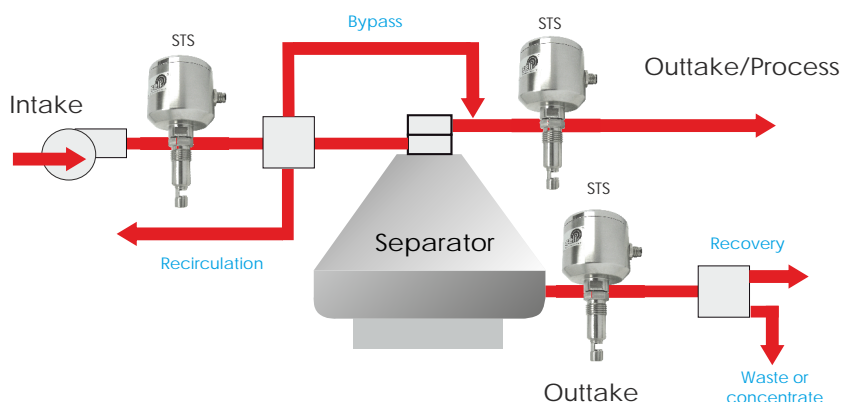
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In this part you can see several separators. Here, the products are measured and controlled in the inlet and outlet, using the STS03 measuring device.

The advantage of the STS03 is the very large measuring range. This can be used very well in the case of dairy products. It needs only one measuring device for all applications in the dairy. Furthermore, the simple calibration by means of a reference filter has to be mentioned.

In this part you can see a sensor STS01 with 5mm optical path length. This device is suitable for phase separation between milk and water at low turbidity. Due to the simpler electronics as a sensor, this device is much cheaper.



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Depending on the product, there are various options and combinations for controlling or regulating a separator:

Control in the outlet

The turbidity in the outlet of a separator is monitored by means of absorption sensors or measuring instruments STS01 / STS03. Discharges of the separator are automated and unnecessary downtime is avoided. The turbidity meter STS03 can be used with small turbidity of 10EBC / 40FAU, up to very high turbidity of 3250EBC / 13000FAU.

Control in the inlet

In the inlet the turbidity is monitored at high turbidity in the milk by means of absorption meters STS03. If the inlet turbidity is too high, the product flow is recirculated to avoid the separator becoming clogged. A single such error can be much more expensive than a suitable sensor that prevents this error.

Bypass control

The turbidity control in the bypass process is ensured in certain cases by means of turbidity meter STS03. Via a bypass, the product is dosed specifically into the previously clarified product and thus adjusted to a constant turbidity level. Also, this measurement can be used as a concentration measurement to ensure a targeted product addition. The control of turbidity directly in the product and in real time, without the need for sampling and laborious laboratory testing, reduces costs and losses.

Control in concentrate

The concentrate stream of a separator is provided by means of turbidimeters with a very small optical path length, e.g. STS03. As a result, the highest measuring ranges are possible in order to subsequently determine the yield of the product and to ensure the product quality.