

MILK – WHITE GOLD

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Abstract

Milk is also known as white gold due to the flexible and universal use in science.

For instance, the *titration of lactic acid*: If you want to determine the lactic acid content of yoghurt, NaOH (*sodium hydroxide*) is used as the reactant partner. A measured amount of yoghurt, the indicator phenolphthalein and distilled water are put into an Erlenmeyer flask and sodium hydroxide solution in the burette is added drop by drop (*titration*) to the mixture. The sodium hydroxide neutralizes the lactic acid of the yoghurt until the pH-value changes into alkaline. The indicator offers it in changing the colour to a weak pink, which shows the endpoint of the titration.

Furthermore, producing ricotta out of milk is also part of the empirical study. Milk is heated to 80°Celsius. Then an acidifier is added which separates the milk into its solid and liquid components. The milk protein *casein* coagulates during this *denaturation* process. After removing the liquid whey, the solid cream cheese remains.

The *Biuret reaction* is a complex reaction for the quantitative determination of proteins. It is specific for peptide bonds. If there are enough peptide bonds in the substance to be examined, a blue-purple coloured complex is formed.

Milk is an *emulsion* which is defined as a finely divided mixture of two immiscible liquids. Emulsifiers form micelles, where the liquid (phase) is closed in droplets surrounded by the aqueous liquid. The phase that forms droplets is called the inner phase or disperse phase.

Keywords: *titration, lactic acid, sodium hydroxide, casein, denaturation, Biuret Reaction, emulsion*