UPTOSPEED Express Updates
SCIENTIQUIPP
Application Note | Nov 2026 | Vol. 8



High Yield Isolation of Milk Casein Via pH-Adjusted Sedimentation At 4°C.

High Yield Isolation of Milk Casein

Milk from domestic mammals such as cows, buffalo, sheep, or goats is a common part of the human diet in India and forms the basis of products like butter, cheese, yogurt, ghee and paneer. In general, it appears to be a slightly viscous, matte white liquid whose physicochemical composition can vary depending on the animal species and breed. Among the nutrients provided by milk, calcium, vitamins A and D, fatty acids, and proteins stand out. Within the latter, the most abundant are caseins, which represent approximately 80% of the total protein content of milk.

Casein Purification Process

Step 1: Skimming (Fat Removal)

- The process begins with skimming the milk by centrifugation at 10’000xg for 10 minutes at 4°C
- The fat will collect as a solid white layer at the very top. Skim it off with a spatula.

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Step 2: Acidification

- Bring the skimmed milk to its isoelectric point (pH 4.6) by adding 0.2N Hydrochloric acid or Acetic acid dropwise while stirring until the pH of 4.6 is reached. At this point casein precipitates, forming what is known as ‘‘acid casein’’.

Step 3: Casein Recovery (The Main Run)

- Centrifuge the acidified mixture at 7,600 x g (standard) to 8,000 x g for 10 minutes at 4°C

The Result:

A clear separation where the casein forms a dense ‘‘pellet’’ at the bottom and the liquid whey (supernatant) stays on top. A target speed of 8,000 x g produces a compact pellet. If the pellet is too soft, increase the RCF slightly rather than the time. This procedure is widely used in the food industry, where casein is employed as a high-quality protein additive in processed food products.

For these types of applications, the ROTA 4R centrifuge is an optimal solution thanks to its processing capacity and the precision it offers in protein purification protocols. Its ability to reach up to 10,509×g makes it an ideal tool for achieving highly efficient separations in milk processing.

Product Details:



PRODUCT – ROTA 4R	
SYSTEM	ROTA 4R
FIXED ANGLE ROTOR	6x50ml
ADAPTERS	15ml

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Since the 1980's Scientiquipp (formerly known as Plasto Crafts) has been synonymous with customer-oriented processes and innovative products, such as laboratory devices. Today, we serve as experts and advisors, using our unique knowledge and experience to support laboratories and research institutions around India. The foundation of the company's expertise is its focus on its customers. Scientiquipp's exchange of ideas with its customers results in comprehensive solutions that in turn become industry standards. Scientiquipp will continue this path in the future, to the standard set by the company's founders: that of *enabling the future of medicine.*

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