

## Process for producing milk powder with an adjustable ash content

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### Introduction

Skim milk powder is an important basic raw material in the production of all infant formula products. For the infant formula industry it is typical that skim milk powders are standardized with lactose instead of an UF-permeate. Such an UF offers the advantage that the ash content in the final product is in total 1% lower.

### Aim

The aim of this project is to provide the infant formula industry with a skim milk product revealing a significant reduced mineral content. The new product covers the general demand of this industry for raw materials with low mineral levels. This will render beneficial within the required low mineral diet for infants.

### Methods

In order to achieve milk powder with a low mineral content several separation steps are applied to the milk upstream of the drying process. At first, such a milk is processed preferably by an Ultrafiltration (UF)-membrane system to split-up milk into a protein- and a permeate-phase. The permeates are pre-concentrated by Reverse-Osmosis (RO) or Nanofiltration (NF) to reach a dry matter of approximately 20-25%. In the next step such a permeate is purified by Electro-Dialysis (ED) to reduce total mineral content. After such a purification step the protein and permeate phase are blended back and being subsequently dried.

### Results

All achieved milk powders displayed a mineral content of 2.0%. Furthermore, it is possible by using such a process to finally achieve a mineral content between 2.0-8.0%. This finally depends on the demineralization degree of the used permeate. With a demineralization degree of 90% within the permeate, a targeted mineral content of 2.0% with the final product is achievable

### Conclusion

This new process development meets the urgent need of the infant formula industry for products with a rather low and constant level of minerals.