



Turn Whey into Profitable Business

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**A Presentation of The
Whey Consulting Team**

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Check Your Value Added Potential

In most food productions, by-products are inevitable. Traditionally such products have been considered as waste and dumped as sewage.

With more attention in recent years to environmental issues, such sewage may even be an expense for industry.

However, quite often developments in processing technology and market demands make it economically attractive to process and market such by-products as ingredients.

Not only the processes for the manufacturing of products from by-products, but also the application and marketing of these products require skills different from those normally found within the traditional dairy business.

The challenge is to get access to the right information in order to be able to judge the alternatives to disposal of the by-products.

Whey contains 50% of the milk TS – that means 5-6%. More than 70% is lactose, but the protein content can be as high as 15% and valuable minerals constitute another 10%.

For many years, whey has been manufactured into a wide variety of products, all being in great demand as valuable ingredients for the feed, food and pharmaceutical industries.

The very first question to answer is whether you have a business potential for your whey. Is the quantity and quality of such a magnitude that utilization can be justified?

And is the market demand for whey ingredients sufficient to create the profitability necessary to justify investment in production equipment and yet allow for an acceptable return on investment?

Whey Consulting Team

GEA being a committed supplier of process lines for the milk industry has collected all its whey processing experience into one task force called The Whey Consulting Team.

The Whey Consulting Team is assisting within all aspects of the utilization of whey. They participate in establishing the knowledge necessary to calculate the profitability of processing the whey. Furthermore, the team recommends the right equipment, and participates in product management and plant operation if required.

Rely on the experience of the Whey Consulting Team when it comes to knowledge not available within your own organization.

The Whey Consulting Team helps you calculate the added value of processing your whey, taking into account the plant investment, processing costs, and the addition of a suitable profit margin.

Market for Whey Ingredients

Whey can be processed into ingredients with functionalities for various applications.

Simple concentration followed by drying is still the most common way of processing whey into value-added products. The concentration process may be combined with demineralization processes to change the applications of the final product to a more advanced level.

The most valuable constituent of whey is the easily digestible whey protein. Whey Protein Concentrate (WPC) can be manufactured with different protein content.

Due to its many nutritional and functional properties, WPC has a variety of applications in industry.

The nutritional value is a plus in infant formulas and health products. The ability to bind water improves the texture in milk and meat products. The whip-

ping and foaming ability improves the quality of certain ice cream and non-dairy products.

When manufacturing WPC, permeate is produced as well. This can be concentrated and dried into permeate powder that finds applications in desserts, bakery goods and instant products such as soups and drinks.

The high lactose content in permeate may be processed into different grades of lactose for use in the food and pharmaceutical industries.

The useful minerals from whey are predominantly calcium and phosphate. Although still limited, the demand for milk minerals within the food and health industry is increasing.

Furthermore, whey contains valuable micro components, e.g. lactoferrin and lactoperoxidase. These are used as bactericides in infant formulas and toothpaste.

Whey Consulting Team

Special knowledge is needed for understanding the market for whey ingredients and finding market opportunities. This knowledge covers the demands for functionality and nutrition in the manufacturing of foods and pharmaceuticals.

The Whey Consulting Team of GEA has a broad knowledge of the market for whey ingredients. Even more important, through world-wide contacts to experts within this field, the team may assist by recommending specialists or commercial companies who are capable of exploring the business opportunity for the ingredients from your whey.

The Plant that Matches Your Requirements

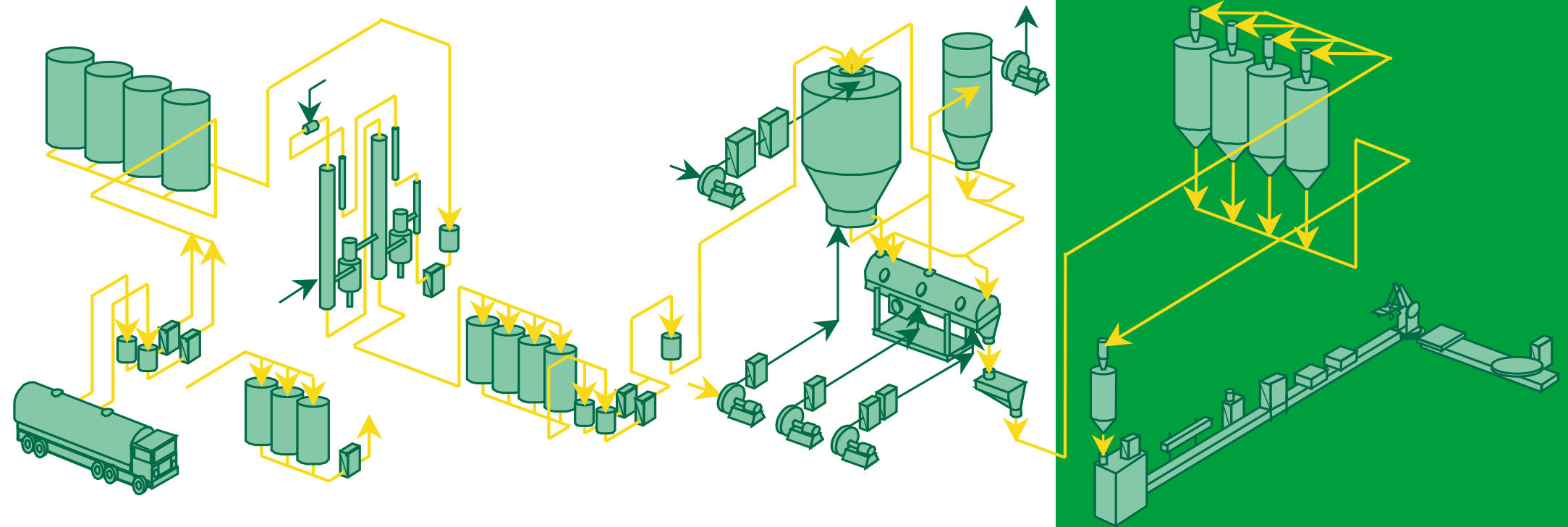
When the market for the ingredients from your whey has been identified and the profitability of processing the whey has been proved, the initial work has been completed.

Like in any other manufacturing process, the design of the right plant is crucial for product quality and economy. You will have to rely on specialists who can recommend the correct unit operations, find the most optimal processing equipment and erect the plant within the calculated timetable. You will experience many pitfalls during this process and only the most experienced and reliable crew is good enough for you in this vulnerable period.

Whey Consulting Team

The Whey Consulting Team is part of the global GEA organization. Years of experience in the design and engineering of process equipment are your guarantee for the most consolidated and reliable backing in all aspects of plant design.

Let the Whey Consulting Team assist you with the construction of your whey processing line.



Evaluate Your Business Opportunity

The added value calculation tells whether it is worth considering the processing of your whey.

However, profitability is not just a question of sales prices.

It takes a complete project calculation including investments in land, buildings and process equipment, and cost of labour and utilities in order to be able to judge the profitability of a whey processing operation.

Many of the data necessary for a proper feasibility study may be available within the company considering utilizing its whey. Others may be explored.

However, all figures have to be added into a project plan.

The consequences of not having included all aspects and thereby not having established the right figures will be wrong conclusions. Consequently, it is recommended to consult with experts who have the tools necessary to establish a proper project plan.

Added Value

The image features a conceptual chart with a vertical y-axis on the left and a horizontal x-axis at the bottom. A blue line starts at a low point, dips slightly, and then rises steadily to the right, ending at a high point. The line is labeled 'Added Value' at its upper right end. Below the x-axis, there are several vertical bars of varying heights and patterns. From left to right, the bars are labeled: 'Lactose' (a tall bar with a diagonal hatching pattern), 'WPC 35' (a medium-height bar with a diagonal hatching pattern), 'WPC 60' (a shorter bar with a diagonal hatching pattern), and 'WPC 80' (the shortest bar with a diagonal hatching pattern). The background of the chart area is light gray with a grid of faint lines.

Whey Consulting Team

The Whey Consulting Team of GEA has the expertise to assist you with the feasibility study for determining the profitability of your whey business.

The Whey Consulting Team has developed an advanced computer model for calculating the economical feasibility of whey ingredient manufacture. Contact the Whey Consulting Team for a presentation of this model, by which your business scenario can be evaluated and valued. Together with you, the result is discussed and conclusions drawn.

We do not consider the job done until we are in agreement on the profitability of utilizing your whey.

Project Management, Documentation and Financing

The successful production of ingredients from whey does not only depend on market conditions and plant design. Proper documentation may be needed in order to obtain the necessary approval from the authorities or to improve the chances of obtaining funds or attractive loans from banks or international organizations.

As a matter of fact, assistance from experts in financing such projects may prove to be very important for the economy of the project.

Finally, professional project management by an experienced team of engineers and technicians is essential. From the very beginning of the project to commissioning or even the first months of manufacturing, our project management is the best guarantee for a successful start of your new business opportunity.

Whey Consulting Team

The Whey Consulting Team of GEA has years of experience from similar projects around the world.

We have gained extensive know-how in establishing attractive financing packages.

Also when it comes to project management and administration, the expertise of the Whey Consulting Team is at your disposal.

Whenever you have an inquiry, question or problem concerning whey and whey processing, contact the Whey Consulting Team. We will never leave you without an answer or a recommendation.



Whey Consulting Team

Niro A/S
Gladsaxevej 305
DK-2860 Soeborg
Tel +45 3954 5454
Fax +45 3954 5800
E-mail: dairy@niro.dk
www.niro.dk

Niro France SAS
4, Rue Jean-Pierre Timbaud
Montigny-le-Bretonneux
F-78185 Saint-Quentin en
Yvelines Cedex
Tel +33 1 30 14 61 10
E-mail: niro@niro.fr

Westfalia Separator AG
Werner-Habig-Str. 1
D-59302 Oelde
+49 2522 77-0
www.westfalia-separator.com

Tuchenhagen GmbH
Am Industriepark 2-10
D-21514 Büchen
+49 4155 49-0
www.gea-l-div.com

**GEA Liquid Processing
Scandinavia A/S**
Nørskovvej 1b
DK-8660 Skanderborg
+45 7015 2200
www.gea-liquid.dk