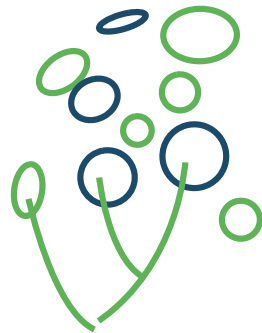


Challenge:

Transform FrieslandCampina's Dairy Side Streams
into Value Added Ingredients



Side Stream Challenge

Summary:

Start-ups/Scale ups/Corporates are hereby invited to submit their innovative ideas (with a preliminary business plan) to help FrieslandCampina Ingredients (FCI) derive more value from its selected dairy side streams namely, Delactosed Permeate coming from its cheese whey and caseinate production and NaFos. These side streams have the potential to be transformed into value added ingredients/products for existing or/and novel applications as they are a rich source of lactose, minerals, and several other valuable components. Post submission of ideas, a jury will invite the shortlisted players to pitch their ideas, and the winning idea(s) will get an opportunity to implement their business plan in collaboration with FCI by receiving access to FCI's expertise, select resources, and these delactosed permeate streams.

Which dairy side streams are part of this challenge?

1. Food grade delactosed permeate (DLP) stream which remains after harvesting whey proteins and lactose from cheese whey production.
2. Feed-grade delactosed Permeate (DLP) which remains after harvesting lactose in caseinate production.
3. NaFos: While demineralizing whey, Phosphates and other minerals are removed by ion exchange technologies. During the regeneration of ion exchange columns, the phosphates are removed, collected, and neutralized, resulting in NaFos.

Specifications of these side streams are as below:

	DLP Cheese Whey	DLP Caseinate	Nafos
Dry Matter	44%	30%	31%
Lactose	60% (45%-65%)	44%	3%
Crude Protein	9%	8%	4.4%
Crude Ash	26%	36%	
pH	5.5-6.2	3.9	4.5
Mineral Composition (Dry Matter)			
Calcium	0.7%	2.9%	
Magnesium	0.2%	-	
Potassium	7.8%	8%	
Sodium	2.1%	2.5%	18.5%
Phosphorous	-	3.3%	
Chloride	6.6%	4.5%	10.4%
Phosphate	3.8%	8.2%	14.7%
Sulphate	0.7%	9.9%	
Organic Salts (Citrate, Others)	12%	-	30%

Few examples of possible transformation of these streams (non-Exhaustive):

- Agricultural Fertilizers: Focusing on nitrogen & mineral content of these streams.
- Industrial Applications in rust removal or metal treatment due to high mineral content while Proteins can be used in surfactants.
- As substrate/reactant for conventional chemistry
- Raw material/Feedstock for fermentation companies to make food or non-food products (e.g., lactic acid).
- Raw material/feedstock for biomass fermentation companies (fungi & microalgae)
- Feedstock for insect protein companies.
- Waste-water treatment- Streams can provide nutrients for microbial communities that break down waste in water.
- Pharmaceuticals- to enhance effectiveness, stability, functionality of drug products.
- Animal Feed

Success Criteria:

- 1. Stage:** Scale-up companies, which have a market outlook and access to production capacity that enables further processing of these side streams at their end.
- 2. Location:** Due to the liquid nature of these side streams, transporting them over long distances have an environmental & economic impact and thus it is preferred if the processing can happen close to Friesland Campina's production plants in Netherlands. Alternatively, transporting them over smaller distances (Belgium, North France, Luxembourg, Western part of Germany, etc.) can also be feasible.
- 3. Prototype:** Companies that can showcase that they can create an ingredient/product using these side streams with a feasible, scalable and a profitable business case.

What details do you need to submit to take part in the challenge?

- Your company information: Company name, Address, Founding year, team size, current infrastructure/facilities.
- Details of your idea: Which ingredient/product/application or their combination you can create using these side streams.
- Preliminary business case
- Your 'Right to Play' & 'Right to Win'
- What do you need from us to implement your idea?

Evaluation Criteria:

1. Technological Feasibility
2. Commercial Feasibility incl. scalability
3. Business Impact (Incl. economic and sustainability impact)
4. Regulatory Ease
5. Cultural Match

Prizes & Winner Benefits

Final shortlisted companies entering the development phase will get access to the following:

1. Expert Mentorship: Benefit from FrieslandCampina's dairy industry expertise via mentorship via brainstorming sessions on topics like development, process technology, scaling up, upstream and downstream processing, regulatory know-how, application development, marketing & commercial capabilities

2. R&D and Scaling up support: Access to FrieslandCampina's R&D infrastructure, such as our Innovation Centre, including a pilot plant with a dryer for processing food grade ingredients & downstream processing facilities.

3. Analytical Capabilities: Access to FCI's analytical infrastructure and capabilities

4. Dairy Side Streams: Access to our dairy side streams

* Access to facilities, expertise & goods are subject to FCI defined boundaries and existing business priorities.

Timelines

Action	Dates **
Announcement and Promotion	Oct 1 – Nov 22
Registration & Submission Phase	Oct 1 – Nov 29
First Shortlist	Dec 6
Presentations (Amersfoort, Netherlands*/Online)	Dec 18
Final Shortlist	Jan 15
NDA/MTAs/Other Agreements	Jan 15-Jan 30
Development Phase	Feb 1- Apr 30
Final Presentations, Evaluations & Next Steps	May 15

* Travels to be managed by the participants

** Dates are subject to change

Register for the Challenge (take me online)