



Cargill

Advancing oleogel production

Industrial materials

Cargill is seeking subject matter experts to bridge the gap between oleogel research and large-scale manufacturing by identifying scalable structuring agents, optimizing production processes, and conducting comparative techno-economic analyses to enable commercial-scale production and supply chain integration.

Background

The field of oleogels has advanced significantly in recent years, offering a promising alternative to conventional fat systems in food applications. Edible oleogel systems present an opportunity to reduce saturated fat content in chocolates and replace cocoa butter, its substitutes, and milk fat, providing both health and sustainability benefits. However, despite strong research interest, a disconnect between lab-scale studies and large-scale industrial adoption has prevented widespread commercialization. Oleogels are semi-solid materials in which liquid oils are structured by oleogelators, which can be broadly classified into low molecular weight oleogelators (e.g., lecithin, fatty acids, waxes, sterols, sterol esters) and high molecular weight oleogelators (e.g., proteins such as canola protein, pea protein, or polysaccharides like pectin, alginates, starch). Various production methods also exist, including direct incorporation methods (hot and cold processing) and indirect methods utilizing water or other solvents. These variations present a wide array of oleogel production possibilities, but also pose challenges when selecting the most practical approach for industrial use. Unlike conventional fats such as cocoa butter, milk fat, and palm oil, oleogels behave differently in key manufacturing processes like tempering, aeration, and emulsification. Since existing food processing infrastructure is optimized for traditional fats, integrating oleogels requires process adaptations that may involve significant investment. Additionally, limited availability of commonly used oleogelators (e.g., sunflower wax, beeswax) presents a major bottleneck for large-scale production. To bridge this gap between research and commercial applications, we are seeking experts with experience in scaling oleogel production from the lab to full-scale manufacturing. This experience does not need to be food-specific—experts from cosmetics, pharmaceuticals, and other industries where oleogels have been successfully manufactured at scale are encouraged to apply.

What we're looking for

We seek professionals with hands-on experience in scaling oleogel production from research to industrial implementation. Ideal candidates will help overcome material availability constraints, improve processing feasibility, and support the industrial-scale adoption of oleogels. Our ultimate goal is to identify the best combination of structuring ingredients and the most effective production methods to create commercially viable oleogels for food applications and beyond. We encourage applications from process engineers, industry analysts, and experts across academia, industry, and consulting who have worked on the practical application of oleogels or similar structured systems. Candidates should bring real-world expertise and actionable strategies to accelerate the commercialization of oleogels.

Topics of interest

- Scaling oleogel technology from research to full-scale industrial production, addressing implementation challenges
- Novel sources of structuring agents beyond commonly used options with limited availability (e.g., sunflower wax, beeswax)
- Processes to modify commodity oils, creating effective, scalable gelling agents
- Strategies to optimize oleogel formulations for widespread industrial use
- Commercial feasibility of oleogel production methods, both direct (hot and cold) and indirect
- Techno-economic considerations for production at scale, including cost modeling, process efficiencies, and raw material economics
- Impact of oleogels on key processing steps (e.g., aeration, emulsification, tempering) in large-scale manufacturing environments

Required qualifications

- Knowledge of processing methods for oleogel production
- Background in industrial R&D, product development, or large-scale manufacturing in food, cosmetics, pharmaceutical, or other relevant industries
- Hands-on experience scaling oleogel (or related structuring systems) production from research to industrial implementation

Nice-to-have

We're open to experts who have experience with:

- Experience in formulation development using novel or widely available structuring agents
- Track record in commercializing innovative food ingredients, fats, or emulsifiers in regulated markets

- Expertise in process engineering or material science, with a focus on fat structuring, emulsification, or aeration
- Strong understanding of supply chain and ingredient sourcing for large-scale food or materials production
- Experience performing techno-economic assessments of food processing or ingredient manufacturing, including OPEX and CAPEX modeling

Expert location

- Accepting applications from experts based in all countries

Who we are

Our global team includes more than 1,500 research, development, applications, technical services and intellectual property specialists working in more than 200 locations. Together, they provide a spectrum of services encompassing technical service, applications, development, research, intellectual asset management, and scientific and regulatory affairs.

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