PerMix
Perfect Mixing Technologies

Mixing & Homogenizing Lecithins

Practical Solutions for High-Viscosity Emulsifiers

Lecithins are essential functional ingredients—but they are rarely easy to work with. Whether soy, sunflower, rapeseed, liquid, de-oiled, or powdered, lecithins present a unique combination of challenges: high viscosity, temperature sensitivity, phase separation, and stubborn settling during storage and transport. These issues are magnified when lecithins are handled in drums, IBC totes, or bulk tanks with limited access.

PerMix engineers mixing systems specifically to solve these problems—efficiently, gently when needed, aggressively when required, and always with process reliability in mind.

Why Lecithins Are Difficult to Mix

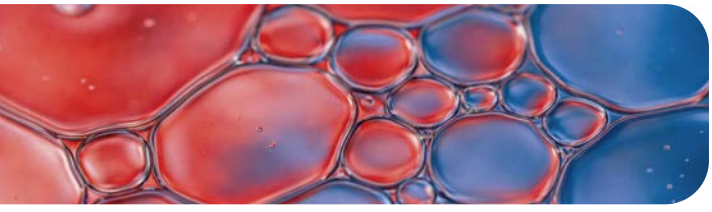
Lecithins don't behave like water—or even like most oils.

They can:

- Settle and stratify during storage
- Gel or solidify at lower temperatures
- Resist dispersion when added to oils or aqueous systems
- Separate after mixing if shear is incorrect
- Overheat or degrade if mixed improperly

Traditional top-entry or bung-mounted mixers are often undersized to fit small openings, resulting in long mix times, incomplete homogenization, and inconsistent batches.

PerMix approaches lecithin mixing as a system problem, not just a mixer selection.



Tote & IBC Lecithin Mixing

Solving the "2-Inch Bung" Problem

Many lecithin producers and users store material in IBC totes with only a small bung opening. Installing a mixer large enough to be effective is often impossible.

PerMix solves this by mixing outside the tote.

Using a closed-loop recirculation system, lecithin is withdrawn from the tote discharge, processed through a PerMix shear pump or inline homogenizer, and returned to the top of the tote. This creates full-volume circulation, rapid homogenization, and consistent material properties—without modifying the tote or purchasing an ineffective small mixer.

This approach is:

- Highly efficient
- Cost-effective
- Easy to retrofit
- Gentle or high-shear, depending on formulation need

Inline Homogenization & Shear Control

Not all lecithins require the same mixing energy.

PerMix systems allow precise control of shear to:

- Re-homogenize settled lecithin before use
- Disperse lecithin into oils or syrups
- Incorporate lecithin into protein slurries
- Break down agglomerates without damaging functional properties

Our inline homogenizers and shear pumps are selected based on:

- Viscosity
- Temperature
- Desired droplet size
- Sensitivity of the lecithin structure

This ensures stable emulsions and repeatable results—batch after batch.

Heating & Temperature Managemet

Temperature plays a critical role in lecithin handling. Too cold, and lecithin becomes unpumpable. Too hot, and it can degrade or scorch.

PerMix integrates heating strategies directly into the mixing process, including:

- Jacketed tanks and vessels
- Inline heat exchangers
- Controlled recirculation heating
- Insulated piping and systems

This allows lecithin to be brought to the ideal processing temperature uniformly—without localized overheating.

Designing for lecithin ensures the system can handle the most demanding material in the recipe.

From Lecithin to Complete Formulations

While lecithin is often the starting point, PerMix systems are designed to scale beyond a single ingredient.

The same mixing and homogenization platforms used for lecithin are commonly applied to:

- Flavor emulsions
- Vitamin and nutrient oil blends
- Chocolate and confectionery applications
- Infant formula ingredients
- Cosmetic creams and lotions
- Industrial emulsions and coatings

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Why PerMix

PerMix brings together:

- Deep understanding of viscous and emulsified materials
- Mixing, homogenizing, and recirculation expertise
- Practical, plant-friendly system design
- Scalable solutions from lab to production
- Real-world experience across food, pharma, nutraceutical, cosmetic, and industrial markets

We don't just sell mixers—we solve process problems.

Let's Talk About Your Lecithin Process

If lecithin settling, separation, heating, or inconsistent mixing is slowing your operation, PerMix can help engineer a solution that works with your existing containers, equipment, and production flow.

Because when lecithin behaves, everything downstream gets easier.

Application Callout

Food & Beverage Manufacturing

Common Challenges

- Lecithin separation in oils and syrups
- Inconsistent dispersion in sauces, dressings, and beverages
- Temperature-sensitive processing

PerMix Solutions

- Gentle inline homogenization to protect functionality
- Heated recirculation loops for stable viscosity
- Repeatable batch-to-batch consistency

Used in applications such as baked goods, beverages, sauces, chocolate, and confectionery.

Inline Homogenization & Shear Control

Not all lecithins require the same mixing energy.

PerMix systems allow precise control of shear to re-homogenize settled lecithin, disperse lecithin into oils or aqueous systems, and break down agglomerates without damaging functional properties.

This ensures stable emulsions and reliable downstream processing.

Application Callout

Nutraceuticals & Dietary Supplements

Common Challenges

- Lecithin settling in vitamin oil blends
- Inconsistent dosing due to separation
- Sensitivity to over-shearing

PerMix Solutions

- Controlled-shear inline mixing
- Tote-to-process recirculation systems
- Hygienic, cleanable designs

Ideal for omega oils, vitamin blends, encapsulation feeds, and functional nutrition

Heating & Temperature Management

Temperature plays a critical role in lecithin handling.

Too cold, and lecithin becomes unpumpable. Too hot, and it can degrade.

PerMix integrates heating strategies directly into the mixing process, allowing lecithin to reach ideal processing temperature uniformly—without localized overheating.

Application Callout

Chocolate & Confectionery

Common Challenges

- Lecithin thickening or solidifying during storage
- Poor dispersion into chocolate liquor or coatings
- Inconsistent flow properties

PerMix Solutions

- Heated recirculation loops
- Uniform temperature control
- Gentle homogenization to preserve mouthfeel

Designed for chocolate mass, coatings, fillings, and confectionery syrups.

From Lecithin to Complete Formulations

While lecithin is often the starting point, PerMix systems are designed to scale beyond a single ingredient. The same platforms used for lecithin are commonly applied to complex emulsified formulations.

Application Callout

Cosmetics & Personal Care

Common Challenges

- Phase separation in creams and lotions
- Sensitivity to heat and shear
- Storage instability in bulk containers

PerMix Solutions

- Precision shear control
- Temperature-managed mixing
- Stable emulsions with smooth texture

Used in creams, lotions, balms, serums, and personal care emulsions.

Application Callout

Industrial & Technical Emulsions

Common Challenges

- High viscosity and settling
- Inconsistent dispersion of functional additives
- Difficult cleanup

PerMix Solutions

- Robust shear pumps and inline mixers
- Closed-loop recirculation systems
- Easy-clean designs for production environments

Applied in coatings, release agents, lubricants, and specialty emulsions.

Why PerMix

PerMix brings together deep understanding of viscous materials, real-world system design, and scalable solutions from lab to production. We don't just sell mixers—we solve mixing problems that others work around.

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