

Whey Permeate in Prepared Food



Build savory dairy flavor, optimize solids and support sodium reduction in prepared food formulations.

Key Benefits in Prepared Food Applications

Savory flavor enhancement:	Naturally occurring dairy minerals can enhance savory flavor and complement cheese, cream, meat and seasoning systems.
Sodium optimization	The mineral profile of whey permeate can contribute salty perception, creating opportunities to reduce added salt while maintaining overall flavor.
Browning & cooked flavor	Lactose supports Maillard browning during heated processing, contributing desirable color and cooked flavor development.
Solids & body	Provides dairy-derived solids that can contribute to the overall solids system in sauces, soups, entrées and other prepared foods.
Cost optimization	Creates opportunities to partially replace higher-cost dairy ingredients where protein functionality is not required.

What it Contributes

	Lactose	Dairy solids, low sweetness and browning potential
	Dairy Minerals	Savory flavor enhancement and salty perception
	Dairy Solids	Dairy character and formulation flexibility
	Low Protein	Adds dairy solids with minimal protein contribution

Typical Use Levels*

Application	Suggested Starting Level
Cheese & Dairy-Based Sauces	2-7%
Soups & Gravies	2-5%
Prepared Pasta & Entrées	1-4%
Savory Dry Mixes	3-9%
Seasoning Systems	2-15%
Potato & Side Dish Products	2-8%

*Optimize through bench-top formulation trials

Common Replacement Opportunities

Evaluate whey permeate as part of the complete solids and seasoning system. Its combination of lactose and naturally occurring dairy minerals can create opportunities to optimize dairy ingredients, sodium and carbohydrate solids.

Ingredient to Evaluate	Potential Benefit
Nonfat Dry Milk	Maintain dairy solids and flavor where additional protein is not required
Sweet Whey Powder	Optimize dairy solids while contributing lactose and dairy minerals
Skim Milk Powder	Partial replacement where protein functionality allows
Salt	Dairy minerals can contribute salty perception, creating an opportunity to evaluate sodium reduction
Maltodextrin	Rebalance solids while adding dairy flavor and minerals
Sugar	Lactose contributes solids with less sweetness and can support browning in heated applications

Formulation Considerations

- ✓ Sodium: Consider dairy minerals when optimizing added salt.
- ✓ Protein: Maintain protein needed for viscosity, emulsification and structure.
- ✓ Browning: Lactose can support Maillard browning during heating.
- ✓ Flavor: Dairy minerals can complement cheese, cream and savory flavors.
- ✓ Texture: Validate viscosity, moisture and texture after adjusting dairy solids.

Processing Benefits

- Excellent dry-blending performance
- Rapid dispersion in liquid systems
- Dairy solids with minimal protein contribution
- Supports browning and cooked flavor development
- Versatile across dry, liquid and thermally processed foods

Where it Delivers the Most Value

- ✓ Cheese sauces
- ✓ Cream sauces
- ✓ Soups
- ✓ Gravies
- ✓ Macaroni & cheese
- ✓ Prepared pasta dishes
- ✓ Savory dry mixes
- ✓ Seasoning systems
- ✓ Mashed potato products
- ✓ Casseroles
- ✓ Frozen & refrigerated entrées

Example Formulation Applications

Potential ingredient reduction when using whey permeate.

Cheese Sauce



Using 4% Whey Permeate

- Optimize NFDM or sweet whey powder where protein allows
- Optimize dairy solids without significantly increasing protein
- Evaluate added salt based on dairy mineral contribution
- Balance cheese flavor, salt perception and viscosity

Result: Balanced dairy flavor with opportunities to optimize dairy solids and added salt.

Cream-Based Soup or Sauce



Using 3% Whey Permeate

- Optimize milk powder and other dairy solids
- Maintain protein needed for viscosity and stability
- Consider dairy minerals within the salt system
- Adjust starch or thickener as needed

Result: Greater formulation flexibility while maintaining creamy flavor and body

Savory Seasonings or Dry Mix



Using 8% Whey Permeate

- Incorporate into the carrier and solids system
- Optimize maltodextrin, dairy powders or other dry ingredients
- Evaluate added salt based on total sodium
- Complement cheese, cream and savory flavors

Result: Dairy-derived solids that support flavor balance and formulation flexibility.

Need formulation support?

The Proliant Dairy Ingredients technical team can assist with ingredient selection, formulation optimization, pilot trials and application development.



Visit our Innovation Kitchen for application ideas and technical resources.

proliantdairy.com
dairyingredients@proliantinc.com
+1 515 289 7600

