

Dairy Ingredients Functionality Guide



AMERICAN
Dairy Products
INSTITUTE™

Functional Properties of Dried Dairy Ingredients

	WHEY PROTEINS						MILK PROTEINS						CASEINS				CARBOHYDRATES	
	Whey	RM Whey	WPC34	WPC80	WPI	WPPC	WMP	NFDM/SMP	DBM	MPC70	MPC80	MPI	Micellar Casein	Acid Casein ²	Rennet Casein ²	Caseinates	Milk/Whey Permeate	Lactose
HYDRATION RATE	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●	●●	●●	●●	●●	●	●	●●	●●	●●
EMULSIFICATION	●	●	●●	●●	●●	●●●	●●	●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●	●
GELATION ¹	●●	●	●●●	●●●	●●●	●●●	/	/	/	/	/	/	/	/	/	/	/	/
WATER BINDING	●	●	●	●●	●●	●●	●●	●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●	●
VISCOSITY	●	●	●	●	●	●●	●	●	●	●●	●●	●●	●●	●●	●●	●●●	●	●
WHIPPING	●●	●●	●●	●●	●●●	●	●	●	●	●	●	●	●	/	/	●●	●	●
BROWNING	●●●	●●●	●●	●	●	●	●●	●●	●	●	●	●	●	●	●	●	●●●	●●●
HEAT STABILITY	●	●●	●	●	●	●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●	●●
ACID STABILITY	●●●	●●●	●●●	●●●	●●●	●●	●	●	●	●	●	●	●	●	●	●	●●●	●●●

Legend

- HIGH
- MEDIUM
- LOW

- DBMDry Buttermilk
- MPCMilk Protein Concentrate
- MPI.....Milk Protein Isolate
- NFDM/SMPNonfat Dry Milk/Skimmed Milk Powder
- RM Whey.....Reduced Minerals Whey
- WMP.....Whole Milk Powder
- WPCWhey Protein Concentrate
- WPI.....Whey Protein Isolate
- WPPCWhey Protein Phospholipid Concentrate

- (1) Heat induced gelation, milk proteins and caseins form acid gels ie. yogurt and cheese
- (2) Acid and Rennet casein are not soluble in water and need emulsifying salts to improve their ability to bind water and emulsify

