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The Importance of Dairy Ingredient Functionality - March 2015

Given the ever expanding list of available dairy ingredients, it has never been more important for manufacturers to understand the functionality of their own ingredients and how to communicate that to food companies developing new products. Functionality testing can provide the key to the characteristics of each ingredient and give the product developer a guide to what each dairy ingredient is "good at". We never say that one ingredient is "more functional" than another but that each ingredient, whether it is a whey protein isolate or a milk permeate, has its own unique functionality.

Functionality is usually determined by methods that measure properties such as water binding, emulsification, foaming, gelling or heat stability, to name a few. Unlike our standard methods for measuring the composition of dairy ingredients, functionality methods are not standard. Most of us that do functionality testing have used methods found in dairy ingredient research publications or even modified methods from non-dairy ingredient research.

Composition of a dairy ingredient is the primary driver of functionality differences. Proteins, fats, and carbohydrates each have unique functions in foods that will translate into different functional properties in a dairy ingredient. The main purpose of a functionality method is to provide a method that can show functional differences between ingredients that vary in composition when a dry dairy ingredient is solubilized in water. Functionality testing can be a useful selling tool for an ingredient and provide a good comparison for a new ingredient, especially if it has some modification from a standard ingredient, ie enhanced wettability, stronger gelling, or greater heat stability.

During the 17 years that I have been at CDR, I have seen a growing interest in food companies wanting to characterize the dairy ingredients they are currently buying and/or ingredients they may be interested in buying. Testing the full spectrum of functional properties gives them a functionality portfolio to help them select the dairy ingredient that fits their particular application. It is also information that could be shared with all the product developers in the company. It may also save a product developer from the age old problem of ordering a dairy ingredient sample for a particular application and having it perform poorly because they didn't understand how it would function in their application. Even dairy ingredients with similar composition will have functional differences because of differences in their source or how they are processed. This

has always been true for whey ingredients. Measuring functional properties is an important screening tool for manufacturers of dairy ingredients and the users of dairy ingredients. If you are a manufacturer of dairy ingredients, it could be an important selling tool for you to help differentiate your products and provide more value to your customer.

Contributor:
KJ Burrington