

## Seeking Companies interested in the Development of a Superior Whey Protein Concentrate (a.k.a. Native Whey)



The Center for Dairy Research (CDR) ([www.cdr.wisc.edu](http://www.cdr.wisc.edu)) is seeking companies interested in the development of less costly process technologies to produce milk derived whey protein concentrate (MD-WPC), a highly desirable, market ready dairy ingredient. If your company produces dried dairy ingredients, or has an interest in applying membrane filtration to value-added products, please contact CDR for more information. We encourage you to find out more about how your company can benefit from working with CDR.

### Technology

- The process involves microfiltration of skim or whole milk using polymeric, spiral type membranes which are less expensive than a traditional ceramic approach. The material passing through the membrane (permeate) is similar to cheese whey but does not contain any cheese coloring or other additives that might be present in cheese derived WPC (CD-WPC). This MD-WPC is then concentrated and dried like traditional CD-WPC. The process conditions needed have been studied extensively at CDR, to allow each condition to be manipulated or customized in order to accommodate the functional properties required in your MD-WPC product.

Component	Cheese Whey	Native Whey
Starter Cultures	Yes	No
Rennet	Yes	No
Glycomacropeptide	Yes	No
Pasteurization Steps	2	1
Fat/Phospholipids	Yes	Negligible
pH	<6.5	6.6

### Functional/Nutritional Benefits

- MD-WPC is derived directly from milk so there is no cheese coloring and no cheese starter culture by-products such as starter bacteria or added flavors. This characteristic allows MD-WPC to have a particularly clean flavor which is extremely stable during storage. MD-WPC also contains less fat than a traditional CD-WPC. The lower fat content in MD-WPC permits for a clearer (less turbid) appearance in applications, making MD-WPC an excellent choice for clear beverages. These attributes have proven to be highly desirable within the food/beverage industry as studies show that the flavor and appearance of a MD-WPC 80 beverage is preferred over that of a cheese derived whey protein concentrate (CD-WPC 80).

Much like CD-WPC, MD-WPC is an excellent source of protein with a high level of branched chain amino acids, which has been shown to increase muscle synthesis. Whey proteins have already proven to be very popular in the marketplace as they are used in such products as athletic drinks, weight loss products and products developed for the baby-boomers market.

### Applications:

- Protein enhanced beverages (particularly great for clear beverages)
- High protein bars



### Economic Benefits

- The economic benefits of using this ingredient include a longer shelf life, increased vat efficiency for cheesemakers (as they use the by-product of this process, casein enriched retentate) and it is a value-added product that can produce additional revenue streams for your company. Incorporating these benefits could potentially lead to a competitive cost advantage in the marketplace.

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### How can CDR help?

- CDR is an internationally known dairy research center and the largest within the United States. Access to world class food scientists/technologists, and a licensed, “operating” dairy plant along with CDR’s client confidentiality commitment provides applied research results at a minimal cost. CDR is not interested in IP opportunities and simply charges a nominal fee for service resulting in a potential, highly beneficial outsourcing option.

For those interested in manufacturing MD-WPC, a polymeric spiral wound microfiltration system will be necessary. CDR can offer an interested company manufacturing trials in the CDR processing pilot plant located on the UW-Madison campus. Working with CDR can provide your company with the data needed to make a business decision on this technology without the significant capital investment needed to conduct this type of applied research.

Priority will be given to the first company accessing this technology with CDR.

Native Whey vs. Traditional Whey		
	CDR’s Native WPC-80 Powder	Commercial WPC-80 Powder
Protein (%) / Dry matter	80%	80.0%
Fat (%)	0.2%	6.0%
Ash (%)	3.8%	4.2%
Lactose (%)	14%	6.5%
Moisture (%)	5.0%	4.0%

