

SIMPLESSE[®]

MICROPARTICULATED WHEY PROTEIN CONCENTRATE



SIMPLESSE®

MICROPARTICULATED WHEY PROTEIN CONCENTRATE

The *Whey* to Healthy Indulgence

In recent years, consumers have become increasingly aware of what they eat. With lifestyle-related diseases and health problems on the rise, ingredients and label claims are becoming a priority for consumer's food product decisions.

The decade of focus given to weight management has resulted in increased consumer awareness, and changes in consumer buying and eating habits. Products are now positioned as 'better-for-you' versus slimming, allowing a consumer to maintain a healthy weight and lifestyle.

A balance is needed between wanting to live and eat healthy without sacrificing the sense of indulgence. Today's consumers have taken a different approach to eating, they want to maintain a healthy lifestyle but have the need to indulge. (Mintel, 2010)

The Concept

CP Kelco has decades of experience in providing food and beverage manufacturers solutions to processed food challenges. In the case of SIMPLESSE, including how to enhance the quality and sensory attributes of low-fat and fat-free foods.

SIMPLESSE microparticulated whey protein concentrate was specifically designed to provide a smooth and creamy mouthfeel in low-fat, reduced-fat and fat-free food and beverage products. The product line has been successful in providing added benefits in a number of applications for many years. SIMPLESSE microparticles behave almost identical to fat globules, which enable food and beverage companies to reduce the fat content of a final product without compromising sensory attributes.

Uniqueness of SIMPLESSE® MPWPC

The unique microparticulation process used to create SIMPLESSE produces uniform microparticles averaging one micron in diameter. Variation in the particle volume can alter sensory attributes and change both the mouthfeel and appearance of the overall product. Due to the consistent particle size, spherical shape and deformable nature, SIMPLESSE microparticles behave almost identically to that of fat globules and provide a unique set of functionalities.

The particle size distribution of the SIMPLESSE 100 product is illustrated in the diagram on the right.

Particle size of protein dispersion equal to 0.1 microns will create a watery mouthfeel. A particle size of 0.01-3.0 microns provides an optimum level of creaminess – similar to the size of emulsified fat droplets in food systems. Particles of this size can interact with each other in the same way fat globules do in the mouth and therefore create a superior mouthfeel.

Key Attributes

Sensory

- Superior mouthfeel – promotes creaminess and smoothness.

Appearance and Physical Properties

- Provides a softening effect and tenderness in cheeses.
- Contributes to opacity and is ideal for volutes and cream-based sauces.
- Promotes aeration in frozen dairy, ice creams and powdered mixes.

Stability (Compared to non-microparticulated WPC products)

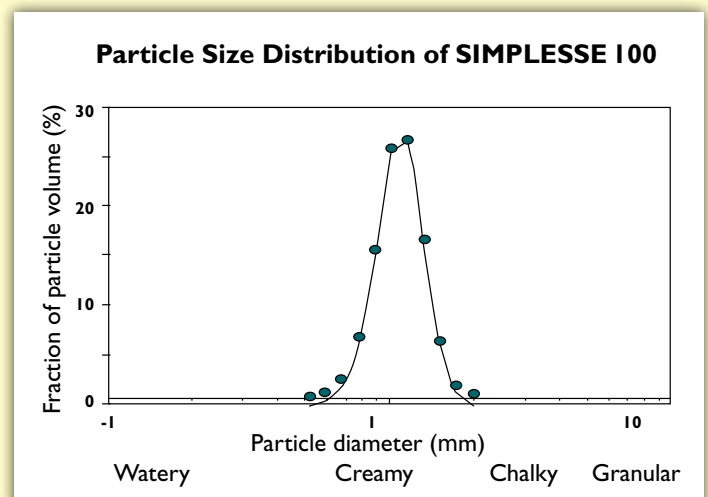
- Enhanced foaming in cachet cappuccino coffee drinks.
- Can be used in UHT systems.
- Freeze-thaw stability ideal for ice cream.

Versatile, Easy to Use & Process Friendly

SIMPLESSE is a free-flowing powder with a mild dairy taste and is readily rehydrated with no special processing required.

The multifunctional nature of the SIMPLESSE microparticles, together with an 18 month shelf-life, allows them to be widely used in a variety of food and beverage applications.

SIMPLESSE is a dairy ingredient and can be labeled as "whey protein concentrate", "modified milk ingredient", "milk protein", or "dairy protein"; dependent upon regional requirements.



...you can

SIMPLESSE® Products at a Glance

GRADE	Applications	Functional Value	% PROTEIN
SIMPLESSE® 100 (Pure)	Desserts, Cheese, Creamers, Beverages Best in low-fat and fat-free applications	Creaminess, smoothness, superior mouthfeel, stability, softening effect, tenderness (in cheese), opacity	53
SIMPLESSE® CC (Combination – KELTROL® Xanthan Gum added)	Dressings, Soups, Sauces Best in full-fat applications	Opacity, creaminess, superior mouthfeel, enhanced emulsion and stabilization under varying temperatures	40

Best Choices and Application Opportunities



Beverages

Due to the consistency and size of the microparticles, SIMPLESSE behaves similarly to emulsified oil droplets in terms of mouthfeel and light scattering. This characteristic allows SIMPLESSE to be used in low-sugar/low-calorie drinks, as well as low-fat and full-fat drinks, to add mouth feel, creaminess, and opacity without the negative impacts of fat.

SIMPLESSE can be applied to: dairy based drinks, powdered drinks, lattes, chocolate drinks, bar mixes, coffee, milkshakes, cream based liquors, meal replacement, acidified milk drinks.

Recommended Use Levels:
SIMPLESSE: 0.5%-2.0%



Dressings, Sauces, Soups

Full, Low and Reduced-Fat

SIMPLESSE, when used in spoonable and pourable dressings, enhances emulsification and stabilization. It complements xanthan gum and other hydrocolloids by acting as the dispersed phase. In this role, SIMPLESSE provided extra creaminess, opacity and mouthfeel.

When used in sauces and soups, SIMPLESSE maintains emulsion stability and contributes creaminess, mouthfeel and opacity in products processed under temperature variations like UHT.

SIMPLESSE can be applied to: cream based soups and sauces, béchamel/hollandaise sauce, dairy based sauces, volutes, and powdered mixes.

CP Kelco has developed significant expertise in the use of SIMPLESSE and KELTROL® to provide superior texturizing systems.

Recommended Use Levels:
SIMPLESSE CC 1.0%-2.0%

KELTROL® Xanthan Gum
0.15%-1.0%



Desserts

Full, Low and Reduced-Fat

SIMPLESSE enhances creaminess and facilitates both aeration and stability.

SIMPLESSE can be applied to: frozen dairy, ice creams, crème brulee, crème caramel, flan and powdered mixes.

In order to meet FDA/NLEA regulations, fortification with vitamin A is required.

Adding SIMPLESSE provides freeze/thaw stability, and can be used in both dairy and non-dairy formulations.

Recommended Use Levels:
SIMPLESSE 100 1.0%-4.0% dry



Cheese

Full, Low and Reduced Fat

SIMPLESSE® microparticles, when used in processed cheese, are quantitatively entrapped in the developing casein curd. The ability to uniformly distribute the water load throughout the casein matrix has a softening effect, without leaving "hot spots" in the cheese which allow excessive ripening and resulting short body.

The SIMPLESSE microparticles themselves are not broken down by the ripening enzymes and remain functional throughout the cheese lifetime. The capture of the microparticles also contributes important yield increases in many cases.

SIMPLESSE can be applied to: processed, cottage, spreadable and traditional cheese.

Adding 0.5-2.0% SIMPLESSE to the cheese milk can result in a 5-20% increase in yield due to fat and moisture stabilization affect in the casein curd.

Recommended Use Levels:
Reduced-Fat Cheese:
SIMPLESSE 100 0.5-1.5%

Processed Cheese:
SIMPLESSE 100 1.0-2.0%



Creamers

Full, Low and Reduced-Fat

SIMPLESSE, in combination with other ingredients, when used in dairy and non-dairy creamers, can be used to manufacture fat-free, low-fat and light creamers that have whitening, viscosity, mouthfeel and flavor that is comparable to full-fat commercial products.

As a dairy ingredient, SIMPLESSE provides a clean base upon which to build a good creamer flavor.

Use conventional equipment and processing.

Recommended Use Levels:
SIMPLESSE: 1.0%

SIMPLESSE® Microparticulated Whey Protein Concentrate in Food & Beverages

(4-Square Value Determination Process)

SQUARE 1: Ingredient Costs	SQUARE 2: Preparation	SQUARE 3: Productivity	SQUARE 4: Quality
<i>Raw material, Logistics, Transport, Storage</i>	<i>Preparation, Batch Prep, Ingredients Combination</i>	<i>Equipment, Filling Operation, Performance</i>	<i>Finished Product Consumer Benefits</i>
<ul style="list-style-type: none"> • Long shelf life • Manufacturing capability in multiple geographic locations • No special label requirements (outside of normal dairy disclosure) • Packaged in sealed bags, shrink wrapped on pallets for allergen control 	<ul style="list-style-type: none"> • No change to ordinary/current processing methods • SIMPLESSE CC can be used in ready-to-use stabilizing systems • No special equipment is needed to incorporate SIMPLESSE • Partial fat replacement at low concentration • Compatible with other hydrocolloids, SIMPLESSE enhances functionality 	<ul style="list-style-type: none"> • Fast hydration • Can reduce processing time due to ease of use • Can increase cheese yields 	<ul style="list-style-type: none"> • Sensory attributes, rich mouthfeel • Improved appearance, milky/creaminess • Enhances whiteness in dairy products • Enhances stability
Ready for Preparation	Combined Intermediate Batch	Processing and Filling	Finished Product Sale
VALUE DELIVERY			

ARGENTINA

CP Kelco Argentina S.A.
Bolivar 187 - 6th A
C1066AAC Buenos Aires
Argentina
Tel: + 54 11 4331-8483
Fax: + 54 11 4331-8483

AUSTRALIA

CP Kelco Australia
41 Devon Street
Cheltenham VIC 3192
Australia
Tel: +61 3 9427 7700
Fax: +61 3 9584 9448

BELGIUM

CP Kelco Belgium b.v.b.a.
Industrieweg 150
BE-3538 Beringen
Belgium
Tel: +32 11 45 86 56
Fax: +32 11 42 03 61

BRAZIL

CP Kelco Brasil
Rua Teixeira Marques, 845
Caixa Postal 21
Chácara São José, Limeira
São Paulo, Brazil
CEP: 13845-127
Tel: +55 19 3404 4600
Fax: +55 19 3451 1948

CHINA

CP Kelco Shanghai Rep. Office
J.M. Huber Investment (China) Ltd
7F Xingyuan Tech. Plaza
No. 418 Guiping Road
Cao He Jing Hi-Tech Park
Xuhui District,
Shanghai 200233
Tel: +86 21 5175 8488
Fax: +86 21 5175 8499

DENMARK

CP Kelco ApS
Ved Banen 16
DK-4623 Lille Skensved
Denmark
Tel: +45 56 16 56 16
Fax: +45 56 16 94 46

FINLAND

CP Kelco Oy
Kuhnamontie 2
PL 500
FI-44101 Äänekoski
Finland
Tel: +358 14 518-3000
Fax: +358 14 518-3003

FRANCE

CP Kelco France
123 rue Jules Guesde
FR-92300 Levallois-Perret
France
Tel: +33 (0) 1 49 03 78 00
Fax: +33 (0) 1 49 03 78 29

GERMANY

CP Kelco Germany GmbH
Pomosing-Werk 5
DE-23775 Großenbrode
Germany
Tel: +49 4367 715 0
Fax: +49 4367 715 111

INDIA

CP Kelco Services ApS
India Rep. Office
4014-4019 Oberoi Garden
Estates
Chandivli Farms Road /
Off Saki Vihar Road
Andheri (E), Mumbai – 400 072
India
Tel: +91 22 2847 4607
Fax: +91 22 2847 6066

JAPAN

CP Kelco Japan ApS
Izumi Kamiyacho Bldg,
8-1, Higashi-Azabu 1-chome
Minato-ku, Tokyo 106-0044
Japan
Tel: +81 3 3560 7313
Fax: +81 3 3560 7316

KOREA

CP Kelco Korea
Room 525, Officetel,
The 3rd complex, King's Garden,
Nae-Su Dong, Jong Ro Gu,
Seoul, Korea, 110-070
Tel: +82 2 545 6022

MEXICO

CP Kelco México
Torre Zentrum
Av. Santa Fe 495 piso 4
Col. Cruz Manca
Del. Cuajimalpa
México 05349, D.F.
Tel: +(5255) 33007840
Fax: +(5255) 33005510

THE NETHERLANDS

CP Kelco B.V.
Postbus 31
6500 AA Nijmegen
The Netherlands
Tel: +31 24 371 9900
Fax: +31 24 371 9999

POLAND

MALTA OFFICE PARK
ul. Abpa A. Baraniaka
88 building D
PL-61-131 Poznan, Poland
Tel: +48 61 625 85 55
Fax: +48 61 625 85 57

RUSSIA

CP Kelco ApS
(Moscow Representative Office)
32/2, building 4
Kadashevskaya emb.
Business Center
"Kadashevskaya Sloboda"
RU-115035 Moscow
Russia
Tel: +7 495 937 36 47/48
Fax: +7 495 937 36 27

SINGAPORE

CP Kelco Singapore Pte., Ltd.
151 Lorong Chuan
#06-07 New Tech Park
Singapore 556741
Tel: +65 6491 9100
Fax: +65 6491 910

UNITED KINGDOM

CP Kelco UK Limited
Cleeve Court, Cleeve Road
Leatherhead
Surrey KT22 7UD
United Kingdom
Tel: +44 (0) 1372 369 400
Fax: +44 (0) 1372 369 401

UNITED STATES

GLOBAL HEADQUARTERS
CP Kelco U.S., Inc.
1000 Parkwood Circle
Suite 1000
Atlanta, GA 30339
USA
Tel: (678) 247-7300
Toll Free: (800) 535-2687
Fax: (678) 247-2797

www.cpkelco.com

E-mail: solutions@cpkelco.com

The information contained herein is, to our best knowledge, true and accurate. All recommendations or suggestions are made without guarantee, since we can neither anticipate nor control the different conditions under which this information and our products are used. There are no implied or express warranties of fitness for purpose. Each manufacturer is solely responsible for ensuring the final products comply with any and all applicable federal, state and local regulations. Further, CP Kelco disclaims all liability with regard to customers' infringement of third party intellectual property including, but not limited to, patents. CP Kelco recommends that our customers apply for licenses under any relevant patents.