LUBRIZOL LIFE SCIENCE

Botanical Ingredients

NEWCAFF™ microcapsules Sustained caffeine release with a clean taste

Description

NEWCAFF™ microcapsules is a novel caffeine delivery system which has been designed to mask the bitter taste of caffeine and provide sustained release.

Composition

60%: Anhydrous caffeine, candelilla wax, carnauba wax, medium chain fatty acid triglycerides.

75%: Anhydrous caffeine, glycerol esters fatty acids.

* 60% and 75% are the caffeine concentrations

A nutritional view

Caffeine is a methylxanthine alcaloid which is well-known for its properties in the central nervous system, its action as a metabolic stimulant, and a fatigue reducer. Caffeine, however, is quickly absorbed and therefore its stimulating effect can be felt instantly after consumption leading to energy fluctuations. In addition, this compound has a bitter taste which compromises its addition into food systems.

One of the trends driving the sports nutrition market growth is the sustained energy claim. Following this trend, there is currently a need for caffeinated products which can continuously provide the desired benefits associated without the unwanted effects for a longer time.

This need can be met by NEWCAFF™ microcapsules which is designed by using lipid hot-melt fluid bed microencapsulation technique to provide a controlled release of caffeine with the additional benefit of masking its objectionable bitter taste.

Applications

Energy powder blends, bars, gels, chewables tablets, milkshakes and different kinds of dietary supplements.

Competitive advantages

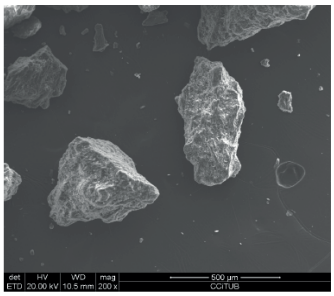
- Clean non-bitter taste
- Controlled release
- High caffeine concentration
- Cleaner formulas

Lipofoods™
Nutraceutical Ingredients

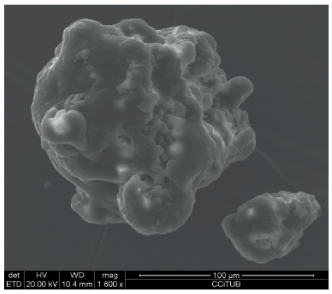
Characterization

Morphology and physicochemical characteristics of NEWCAFF™ microcapsules

TEST	SPECIFICATION
Color	White to light brown
Caffeine Content	60%, 75%



SEM image of caffeine



SEM image of NEWCAFF™-60 microcapsules

Scanning electron microscopy

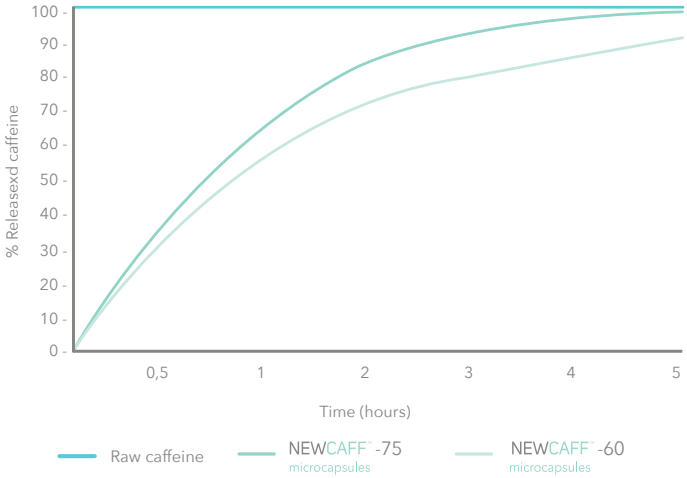
Scanning electron microscopy (SEM) observations show caffeine powdered particles with an angular shape and polyhedral appearance. On the other hand, microcapsules containing caffeine have a round shape with little granules adhered to its surface forming the lipid insulating coating.

The bitter taste of caffeine particles in NEWCAFF™ microcapsules is masked

Caffeine particles received an uniform and stable wrapping via NEWCAFF™ microcapsules technology successfully masking the bitter taste of caffeine.

In vitro release profile

Caffeine release from the NEWCAFF™ microcapsules was tested using a standard method following the Health Canada official method of determination of the disintegration time DO-25 by being submitted to digestion process. For this purpose, the analysis was carried out simulating in vitro digestive conditions at physiological temperature (37°C) and at physiological stomach and intestine pH.



A sustained release of the caffeine from NEWCAFF™ microcapsules is observed

Both versions showed a good retention and an improved in vitro sustained release profile when compared to unencapsulated caffeine.

For more information, visit www.lipofoods.com

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