

Hydresia™

Hydresia® Oleosomes

Through a sustainable process, we isolate natural, multifunctional ingredients from oilseeds that enhance the performance of your personal care products.



Beyond Oil

Hydresia® oleosomes are micron-sized spheres of emollient plant oils and vitamin E, surrounded by a phospholipid membrane and protein coat. Found naturally in all oil bearing plant seeds, oleosomes serve as the natural storehouse of energy used by the seed during germination.

Oleosomes are isolated as aqueous dispersions according to a patented, chemical-free, green manufacturing process. Hydresia® oleosomes consist of a 65% dispersion of oleosomes in water. This unique mixture has considerable benefits over and above regular plant oils in personal care formulations.

Revolutionary Benefits

Hydresia® oleosomes enhance formulations with multifunctional benefits and provide a perfect balance between natural authenticity and real performance.

Due to their unique structure, Hydresia® oleosomes function in hot or cold-process emulsifying systems over a wide HLB range.

This allows for natural emulsions with potentially reduced manufacturing cost. Hydresia® SF2 can emulsify three times its weight in oil, Hydresia® G2 can emulsify two times its weight and Hydresia® Dulcé can emulsify its weight in oil.

Hydresia® oleosomes can be used as a dispersant and emulsifier in inorganic sunscreens to reduce whitening. Additionally, they can contribute up to 80 minutes of water resistance, naturally without additional additives.

Oleosomes deliver their contents onto the skin surface over time via gradual release for improved aesthetics in nearly all personal care applications, including alcohol hand sanitizers. The addition of glycerin, as in Hydresia® G2, can extend this benefit.



**COSMOS
APPROVED**

What are Oleosomes?

Oleosomes are storage structures (1-3 μm in size) within plant seeds, that store and protect the oil energy source for the germination process.

They consist of a core of vegetable triglyceride oil, surrounded by a phospholipid monolayer with an oleosin protein coat (1% of weight). Oleosins are proteins that consist of both hydrophilic and hydrophobic domains, that are surface active (surfactant-like) and as such, they exhibit unparalleled emulsification efficiency, even at low levels.

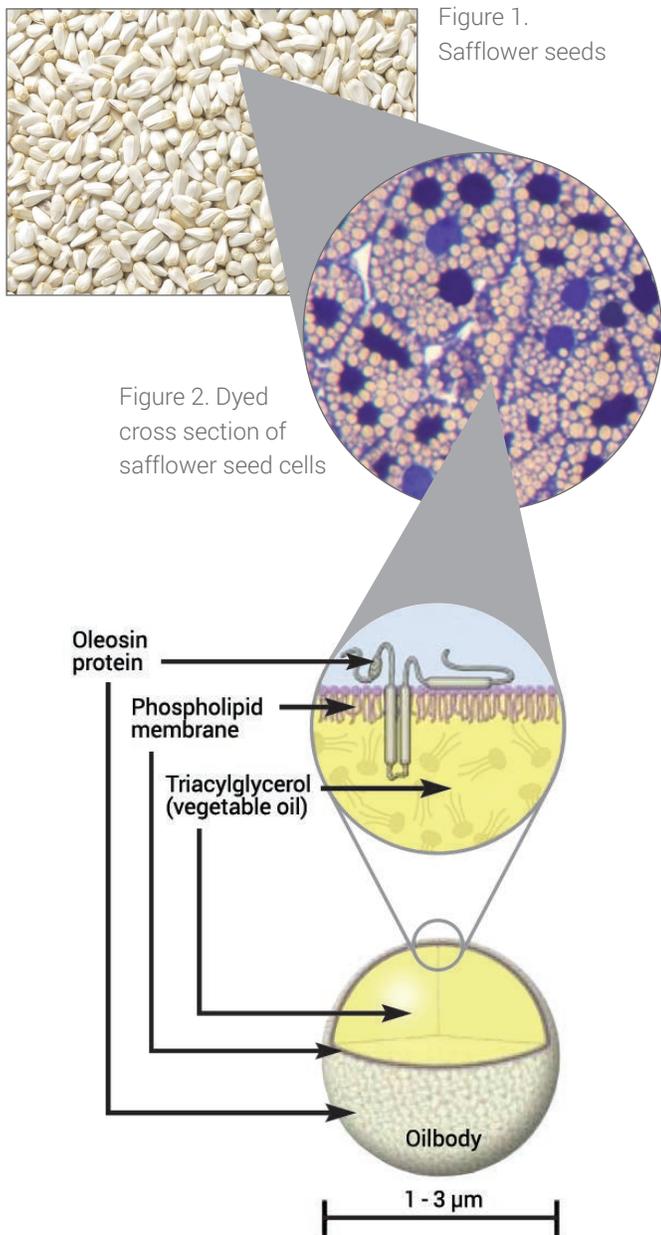
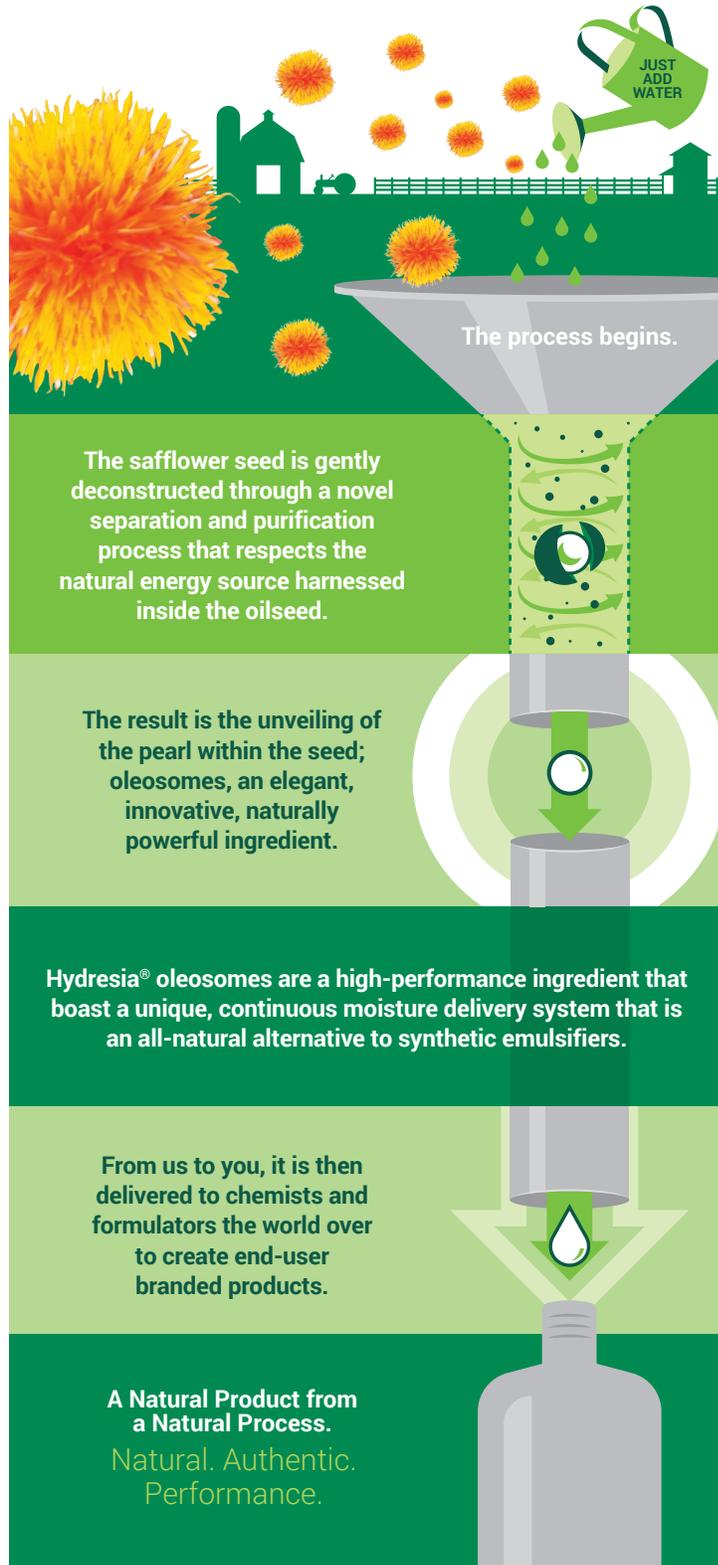


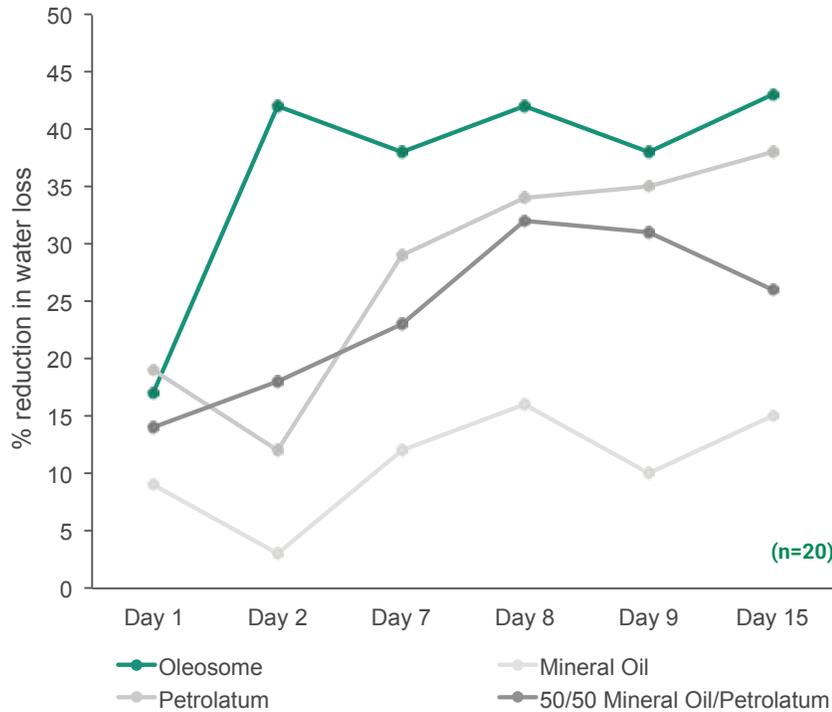
Figure 3. Safflower oleosome

How are Oleosomes Isolated?

Botaneco isolates oleosomes fully intact without chemical modifications, unlike all other primary emulsification systems on the market today.



Transepidermal Water Loss



Skin Care Applications

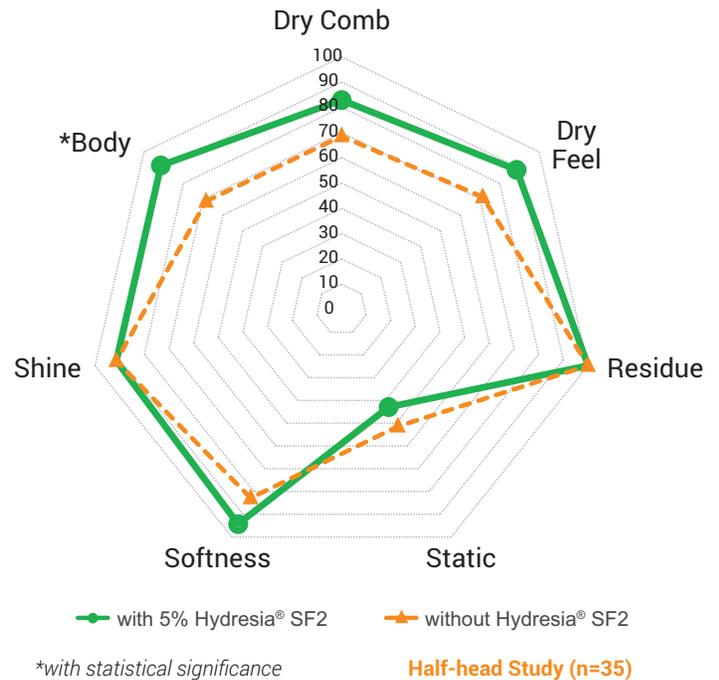
Each occlusive agent was prepared in an o/w emulsion at a concentration of 7.5% using either Hydresia® SF2 or 2% steareth-2/steareth-21 as the emulsifier. The emulsions were applied daily to the same site on the skin, allowed to dry and after six hours readings were taken. TEWL values are reported as percentage reduction in water vapor escaping from the skin.

Compared to the traditional barrier agents with traditional emulsifiers, oleosomes improved the prevention of water loss over a 15 day period.

Hair Care Applications

An independent half-head study was completed comparing a natural shampoo with 5% Hydresia® SF2 and the same formulation without Hydresia® SF2. The Hydresia® oleosome-containing formula had statistically significant improvement in body of the hair, with strong trends towards superior dry combing, softness, and dry feel. These improvements are attributed to the oleosomes collapsing and releasing their moisturizing oils and vitamin E to the hair and scalp. The addition of 5% oleosomes to the shampoo formulation was also found to have no perceived effects on foaming, rinse-out or dispersion.

Dry Hair Attributes Comparison



	Hydresia® SF2	Hydresia® G2	Hydresia® Dulcé
INCI Name	<i>Carthamus Tinctorius</i> (Safflower) Oleosomes + Water	<i>Carthamus Tinctorius</i> (Safflower) Oleosomes + Glycerin + Water	<i>Prunus Amygdalus Dulcis</i> (Sweet Almond) Oleosomes + Glycerin + Water
Appearance	Off-white cream		
Odor	Slight, characteristic		
pH	3.5 - 5.0	4.0 - 5.0	4.0 - 5.0
HLB	5 - 15 functional range, 8 - 13 optimal range		
Viscosity	500 - 2400 cps (DVE Viscometer, LV-3 @ 5.0 rpm) for 30 seconds @ Room Temperature		
Oleosome %	65%	60%	60%
Preservation System	Gluconolactone (and) Sodium Benzoate		
Use Levels	5 - 20%		
Hydresia® : Oil Ratios	1:3	1:2	1:1
Certifications	Cosmos, NSF	Cosmos	Cosmos
Function	Emulsifier, emollient and delivery system		
Main Applications	Skincare, Suncare and Color Cosmetics	Cleansers, Shampoos, Conditioners and Hair Treatments	Premium Skincare and Haircare

Hydresia® Oleosomes Formulary Facts

- Mix well before use or sampling and store raw material between 4°C – 24°C.
- For optimal stability, when using oleosomes as a primary emulsifier, include thickeners to ensure viscosity of the finished formulation is over 9000 CPS.
- The raw material can be mixed up to 400 rpm as is and can be mixed up to 800 rpm with a propeller when adding oil phase ingredients to concentrated oleosomes. Once water phase is added, the mixture can be homogenized up to 3000 rpm.
- Temperatures up to 60°C are acceptable for all Hydresia® formulations. Hydresia® should be added to formulations requiring temperatures over 60°C on cool-down. (Do not exceed 70°C.)
- Oleosomes are stable in freeze/thaw cycles in formulations; however, the raw material should never be frozen.
- Formulate at pH between 3.5 - 9.0.
- Hydresia® oleosomes are compatible with high alcohol systems, but will not result in a clear formula.
- Hydresia® oleosomes are compatible with high salt systems, but will not result in a clear formula.
- Compatible with most surfactant systems (avoid harsh anionics - e.g. SLS) and preservative systems (avoid protein cross-linkers - e.g. DMDM hydantoin).
- Hydresia® oleosomes can load up to 30% of their weight in oil-soluble actives and can solubilize water-soluble actives in traditionally anhydrous formulations.