



Hydresia®

NATURAL. AUTHENTIC. PERFORMANCE...



Hydresia® Technical Bulletin

Raising the Bar in Going Green

Oleosomes are found in a variety of oil bearing seeds and function as storehouses for oil, used as an energy source during germination. Botaneco isolates these microspheres using a patented solvent-free process, to yield the most natural, effective emulsification and delivery system on the market today.

END-CONSUMER BENEFITS

Hydresia® offers customers a “difference you can feel” in an all-natural format

- 🌱 **Improved Skin Health:** Rebuilds the skin barrier faster by retaining skin lipids, therefore improving moisturization twice as fast as standard, irritating non-ionic emulsions
- 🌱 **Outstanding Aesthetics:** Customers prefer oleosome- based formulations and their aesthetic characteristics, “a difference you can feel”

MANUFACTURER BENEFITS

Hydresia® allows you to formulate better products while increasing manufacturing efficiencies

- 🌱 **Increased Throughput:** Enables you to make a formulation in the lab or the plant quicker and with less energy (i.e., cold process)
- 🌱 **Upgraded Formulations:** Replace synthetic emulsifiers and barrier agents, while extending the release of actives, fragrances and other oil soluble ingredients

Hydresia®: END-CONSUMER BENEFITS

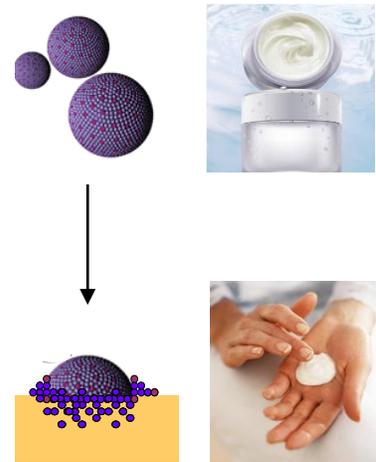
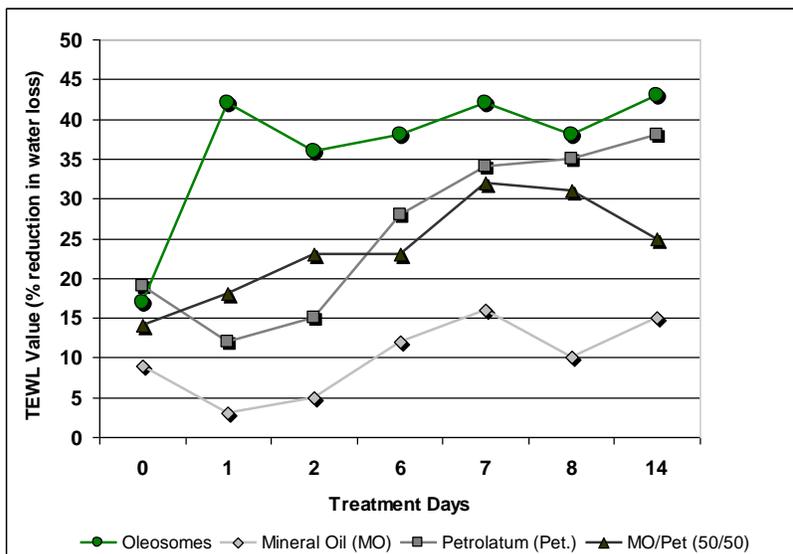
Improved Skin Health: Hydresia® rebuilds the skin barrier faster by preventing the disruption of skin lipids, thereby improving moisturization twice as fast as irritating non-ionic emulsifiers.

Non-ionic emulsifiers are disruptive and irritating to the skin

- Several recent research studies have shown that ethoxylated non-ionic emulsifiers cause skin irritation and increased moisture loss (as measured by TEWL) upon application, by disrupting the protective lipids surrounding skin cells (Barany et al, Int J Pharmaceutics 195 (2000)).
- As depicted in the graph below, disruption of the skin biofilm by standard non-ionic emulsifiers retards the ability of petrolatum / mineral oil to reduce moisture loss and delays barrier formation on the skin.

Hydresia® products are significantly milder, more moisturizing alternative to ethoxylated non-ionic emulsifiers

- Oleosomes have a unique mechanism that does not disrupt skin cells, therefore reducing the irritancy potential. While in a formulation, the oleosome structures are intact and able to function as efficient emulsifiers. When the formulation is applied to the skin, oleosomes collapse and lose their emulsification ability without deleterious effects on the skin. This mechanism is called transient emulsification and is unique to oleosomes.
- This combination of transient emulsification and safflower oil release allows oleosome-based formulations to achieve maximum reduction in water loss (moisturization) and barrier formation on the skin in the first 24 hours.



The Effect of Transient Emulsification



Outstanding Aesthetics: Customers prefer oleosome-based formulations and their aesthetic characteristics, “a difference you can feel”

Natural formulations with an oleosome base were preferred over a natural prestige moisturizer containing a traditional non-ionic emulsifier base

- Single blinded consumer panel studies (n=20) demonstrated that the aesthetics of moisturizers made with oleosomes were equivalent to or preferred overall and had better perceived skin conditioning than a national prestige moisturizer made with ethoxylated non-ionic emulsifiers

Parameter	Both Formulations are equivalent	Preference for oleosome based moisturizers	Preference for non-ionic based moisturizer
Perceived skin conditioning (after 4 hours)	35%	50% (10 / 20)	15%
Overall Preference	40%	40% (8 / 20)	20%

Hydresia®: MANUFACTURER BENEFITS

Increased Throughput: Enables you to make a formulation in the lab or the plant quicker and with less energy (i.e., cold process)

Formulate up to 6 times faster in the lab with Hydresia® compared to traditional hot process approach

- Hydresia® is a very efficient cold-process emulsifier with an operational HLB range of 5 – 15. This allows emulsification of most oil-phase ingredients used in personal care products without the need for secondary emulsifiers.
- Thickeners are required to build viscosity, and a variety of thickening systems are compatible including water-phase thickeners (gums, celluloses, clays) and oil-phase thickeners (cetyl alcohol, beeswax, esters). Acrylates are also compatible.
- Typical oleosome-based formulations take 30 minutes to 1 hour to prepare, and can be entirely cold-process or a modified hot-process (≤60°C to incorporate high melting oil phase ingredients). This is compared to 3 or 4 hours using traditional hot process.

Manufacture up to 3 times faster in the plant with Hydresia® compared to traditional hot processing

- Oleosomes formulations can significantly reduce manufacturing cycle time, while lowering energy consumption, thereby saving money. Below is a real example of the type of savings realized by one of our customers;

Product Line: Skincare lotions	Oleosome Cold-process (Now)	Traditional Hot-process (Before)
Manufacturing Production Time (per batch)	6 hours	16 hours
Energy Consumption (Heating, per batch)	0 BTUs	2,500,000 BTUs

Upgraded Formulations: Replace synthetic emulsifiers and barrier agents, while extending the release of actives, fragrances and other oil soluble ingredients.

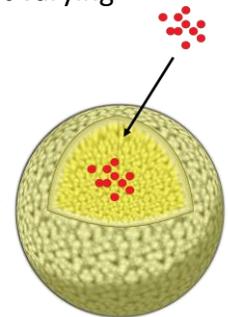
Convert traditional formulations to natural ones without sacrificing performance

- Hydresia® can completely replace or supplement several ingredient classes in a formulation, including all emulsifiers (non-ionic, anionic and amphoteric), occlusive agents (petrolatum, mineral oil), emollient esters and anti-oxidants.

Extend release of actives, fragrances and other ingredients for better activity

- Oil-soluble actives (MW <3000) can be directly loaded into oleosomes, where they will be protected from oxidation and then be released to the skin upon collapse of the structure.
- Double blinded studies demonstrated that consumers can detect continuous fragrance release over 8 hours with oleosome formulations that is superior to the fragrance detected from traditional hot process emulsions.
- A variety of oil soluble actives have been successfully loaded into oleosomes at varying efficiencies

Oil Phase Ingredient	% Loading Percentage into oleosomes
Tocopherol Acetate (Vitamin E)	30 %
Octyl Salicylate (UVB)	25 %



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Hydresia® PRODUCT OFFERINGS



Hydresia®

INCI: Carthamus Tinctorius (Safflower) Oleosomes



Hydresia™
SF2

INCI: Carthamus Tinctorius (Safflower) Oleosomes

65% oleosomes+ EcoCert® preservative

ECOCERT® Compliant
NPA approved

Formulation pH range of 3.5 – 9.0
Stable in high-alcohol formulations

Ideal product application:

- Natural skin care
- All low pH formulations (e.g., exfoliant, acne product)
- All high alcohol formulations (e.g., hand sanitizer, wipes)



Hydresia™
G12

**INCI: Carthamus Tinctorius (Safflower) Oleosomes
+ Glycerin**

60% Oleosomes + EcoCert® preservative

ECOCERT® Compliant
NPA approved

Formulation pH range of 3.5 – 9.0
Glycerin for foam boosting and increased humectancy

Ideal product application:

- Natural skin care
- All cleansers (e.g., bodywash, scrub, facial care)
- All hair care (e.g., conditioner, treatments)



Hydresia™
Dulcé

**INCI: Prunus Dulcis (Sweet Almond)
Oleosomes + Glycerin**

60% Oleosomes +EcoCert® preservative

ECOCERT® Compliant
NPA approved

Formulation pH range of 3.5 – 9.0
Glycerin for foam boosting and increased humectancy

Ideal product application:

- Premium personal care
- Secondary ingredient in other oleosome formulations to boost aesthetics

For additional information please visit us at: www.botaneco.ca

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