SUNJIN BEAUTY SCIENCE

Ceraplex

Ceraplex series are **active ingredients** delivery system for **W/O** emulsion for insoluble and crystalline active ingredients such as Ceramide, Madecasoside and so on.

Grade	INCI NAME	Remark
CERAPLEX	Squalane, Polyglyceryl-4 Isostearate, Disteardimonium Hectorite, **Ceramide NP, Phytosterols**, Stearic Acid	Natural Ceramide **100,000ppm**
CERAPLEX Lite	Disteardimonium Hectorite, Polyglyceryl-4 Isostearate, Polyglyceryl-3 polyricinoleate, Sorbitan isostearate, Coco-Caprylate/ Caprate, **Ceramide NP**	Natural Ceramide **10,000ppm**
CERAPLEX Mix	Polyglyceryl-4 Isostearate, Caprylic/Capric Triglyceride, Disteardimonium Hectorite, **Ceramide NP**, **Hydroxypropyl Bispalmitamide MEA, Phytosterols**, Stearic Acid	Natural Ceramide **1,000ppm** Pseudo Ceramide **100,000ppm**

Ceraplex Aqua

Ceraplex Aqua is a **delivery system of ceramide** for **O/W** emulsion.

Grade	INCI NAME	Remark
CERAPLEX MIX AQUA	Disteardimonium Hectorite, Polyglyceryl-10 stearate, Caprylic/Capric Triglyceride, **Hydroxypropyl Bispalmitamide MEA, Ceramide NP, Phytosterols**, Stearic Acid	Natural Ceramide **1,000ppm** Pseudo Ceramide **100,000ppm**

Ceramides are nearly insoluble in common cosmetic oils at room temperature. Although it can be soluble at high temperature(>90C), ceramides are very susceptible to recrystallization in cosmetic formulation over time.

Conventional ceramide delivery systems have been liposome based technologies but it can be only applicable to O/W emulsion systems

Ceraplex Aqua

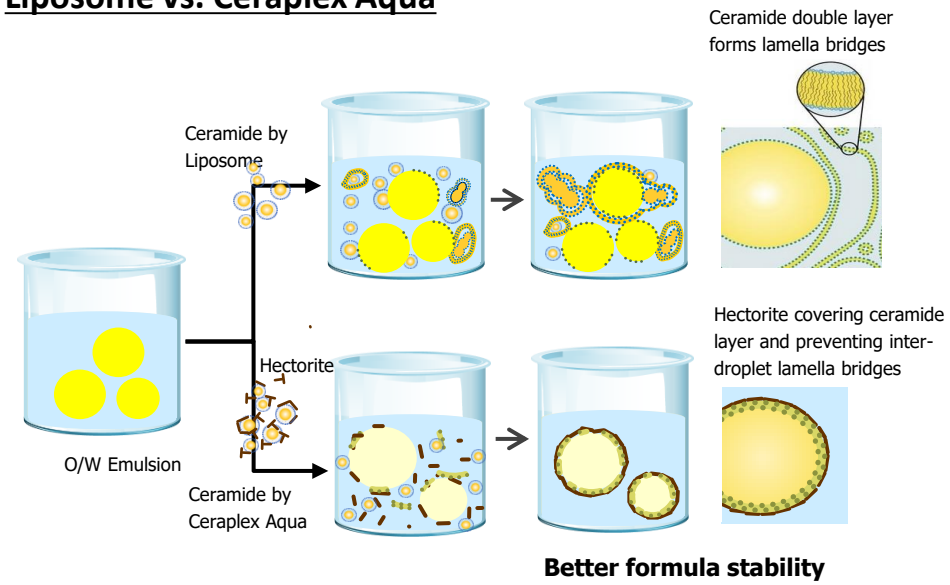
Benefits

- Ceraplex AQUA is more stable than liposome based technologies as 2 dimensional Hectorite plates provide more physical strength to interface layers of emulsion droplets

- More suitable to Clean Beauty concept as Liposome technologies frequently use **PEG based surfactants** to prevent recrystallization of ceramides
- **No GMO, no PPG, PEG, Silicone**

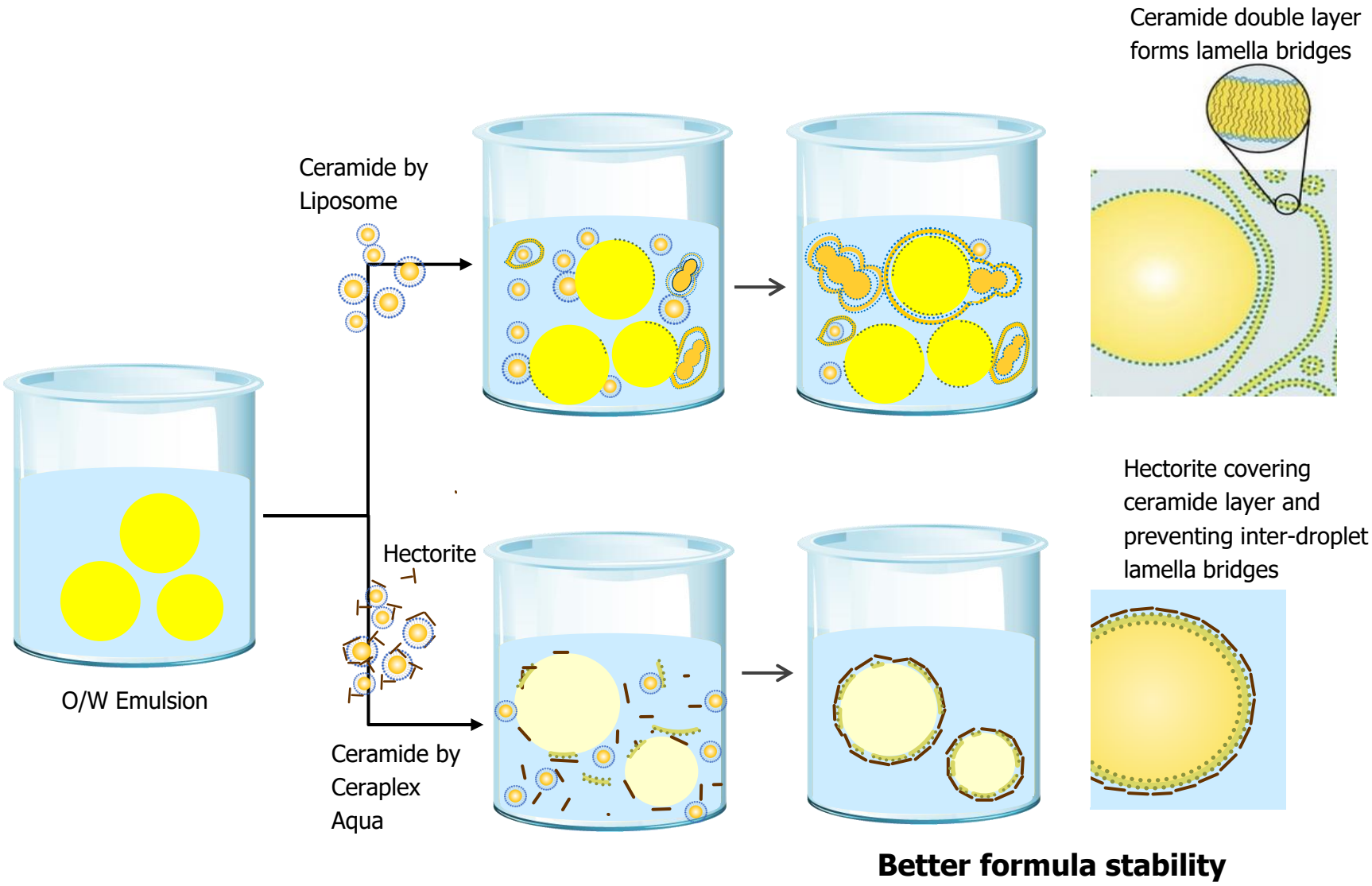
Grade	INCI NAME	Remark
CERAPLEX MIX AQUA	Disteardimonium Hectorite, Polyglyceryl-10 stearate, Caprylic/Capric Triglyceride, **Hydroxypropyl Bispalmitamide MEA, Ceramide NP, Phytosterols**, Stearic Acid	Natural Ceramide **1,000ppm** Pseudo ceramide **100,000ppm**

Liposome vs. Ceraplex Aqua



*Custom made **'Activeplex'** system for other kinds of active ingredients available based on customers' requests*

Liposome vs. Ceraplex Aqua



Stability Test by Microscope@50℃

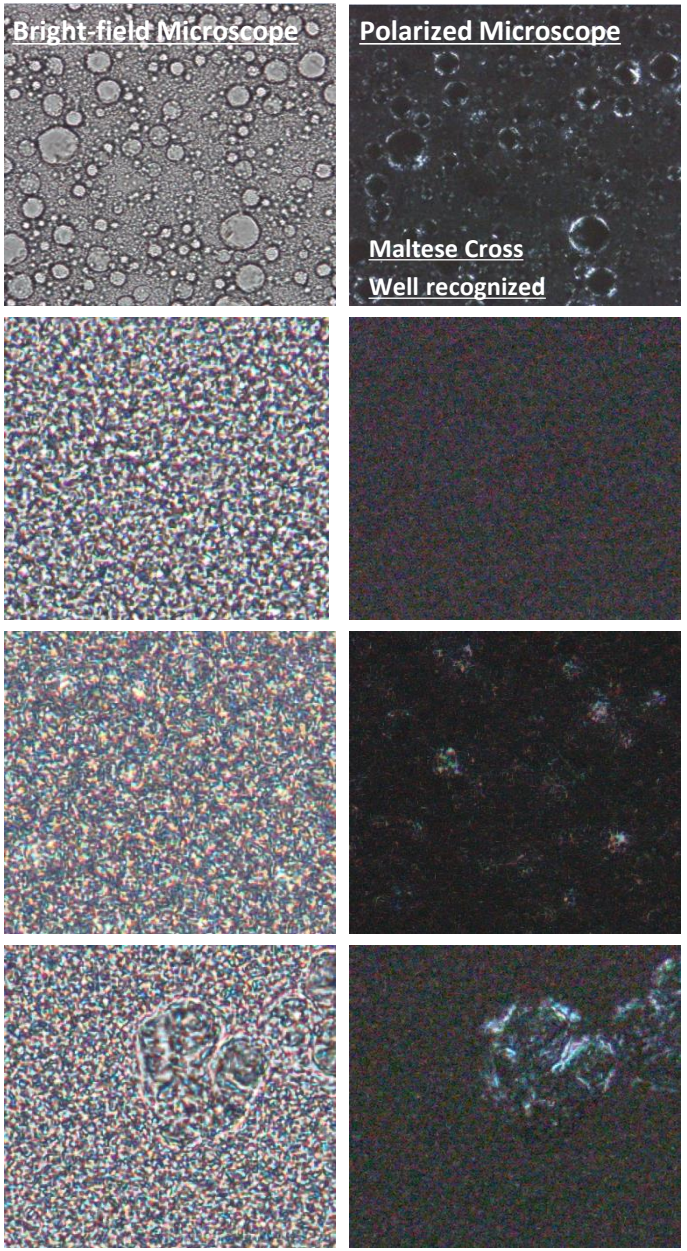
NIVEA Lotion

Case #1
CeraPlex Mix AQUA(Ceramide 10% inside)
5% added
→ Ceramide 5000 ppm in formula

Case #2
Liposome1(Ceramide 1% inside)
5% added to Nivea Lotion
→ Ceramide 500 ppm in formula

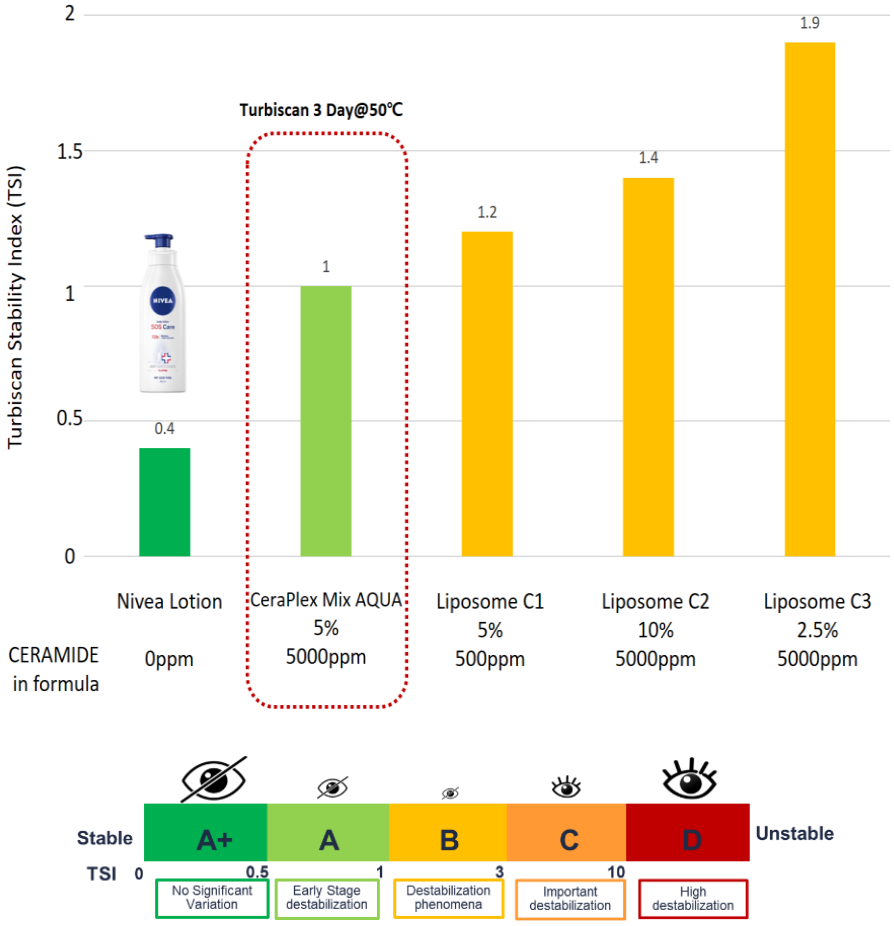
Case #3
Liposome2 (Ceramide 5% inside)
10% added
→ Ceramide 5000 ppm in formula

Case #4
Liposome3 (Ceramide 20% inside)
2.5% added
→ Ceramide 5000 ppm in formula



Formula stability

by Turbiscan



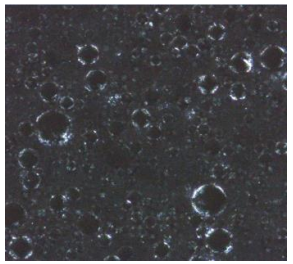
Aging and Ceramide level

	Age	Ceramide level
Hands	21-30 years	100%
	31-40 years	78%
	41-50 years	63%
Face	21-30 years	100%
	31-40 years	62%
	41-50 years	37%

A.V. Rawlings et al. in Biocosmetics-Skin aging, IFSCC, vol. I, 31-45 (1993)

The Maltese cross image is a distinct arrangement that appears when a lamellar membrane is present. It is seen using cross-polarized microscopy. The maltese cross occurs because hydrophobic interactions between the alkyl chains result in macroscopic molecular crystallization. This is visible under a cross-polarized microscope.

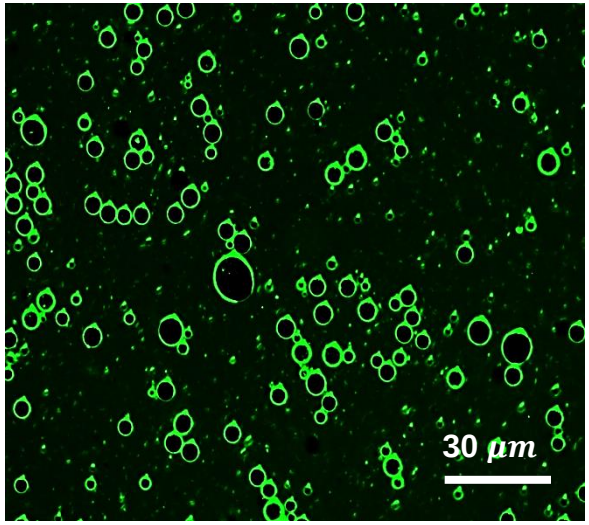
The maltese cross pattern is used to determine if a moisturizer uses the proper ratio and type of lipids (ceramides, fatty acids, and Phytosterols) to repair the skin barrier. Visualization of the maltese cross pattern in a moisturizer formulation means that the lipids in the moisturizer are mimicking the skin's natural lamellar membrane structure



CLSM* images of CERAPLEX AQUA emulsion

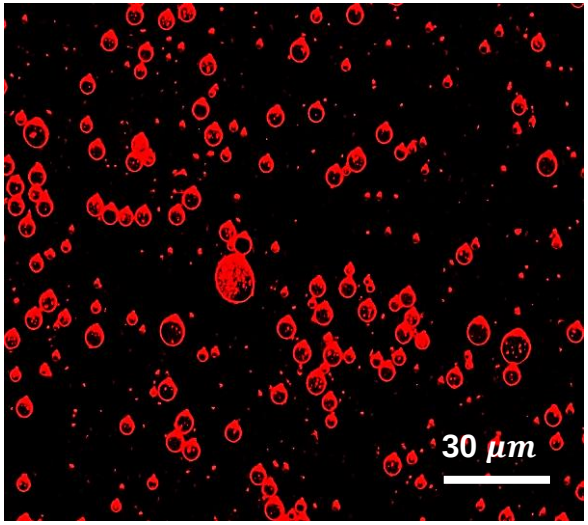
O/W emulsion

Hectorite – labeled image



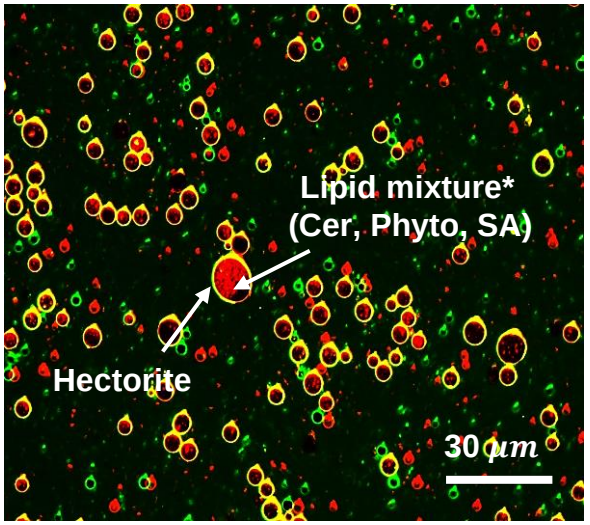
Dye: FITC

Lipid – labeled image

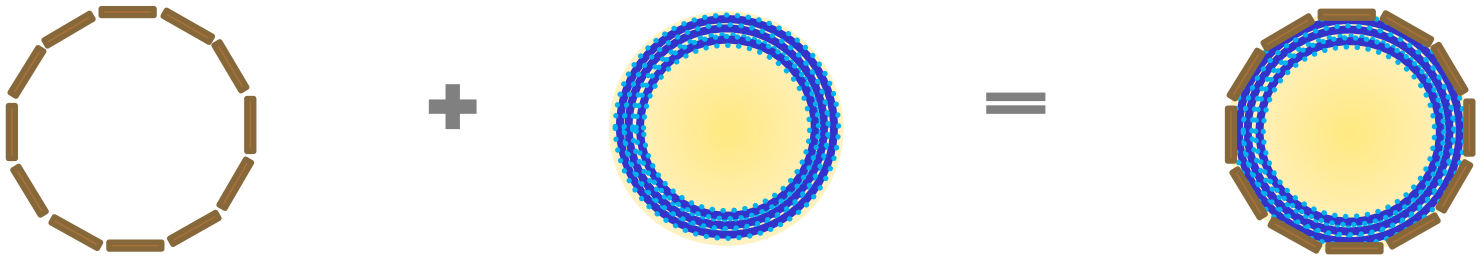


Dye: Texas Red-DHPE

Merging image



Hectorite covers ceramide layer

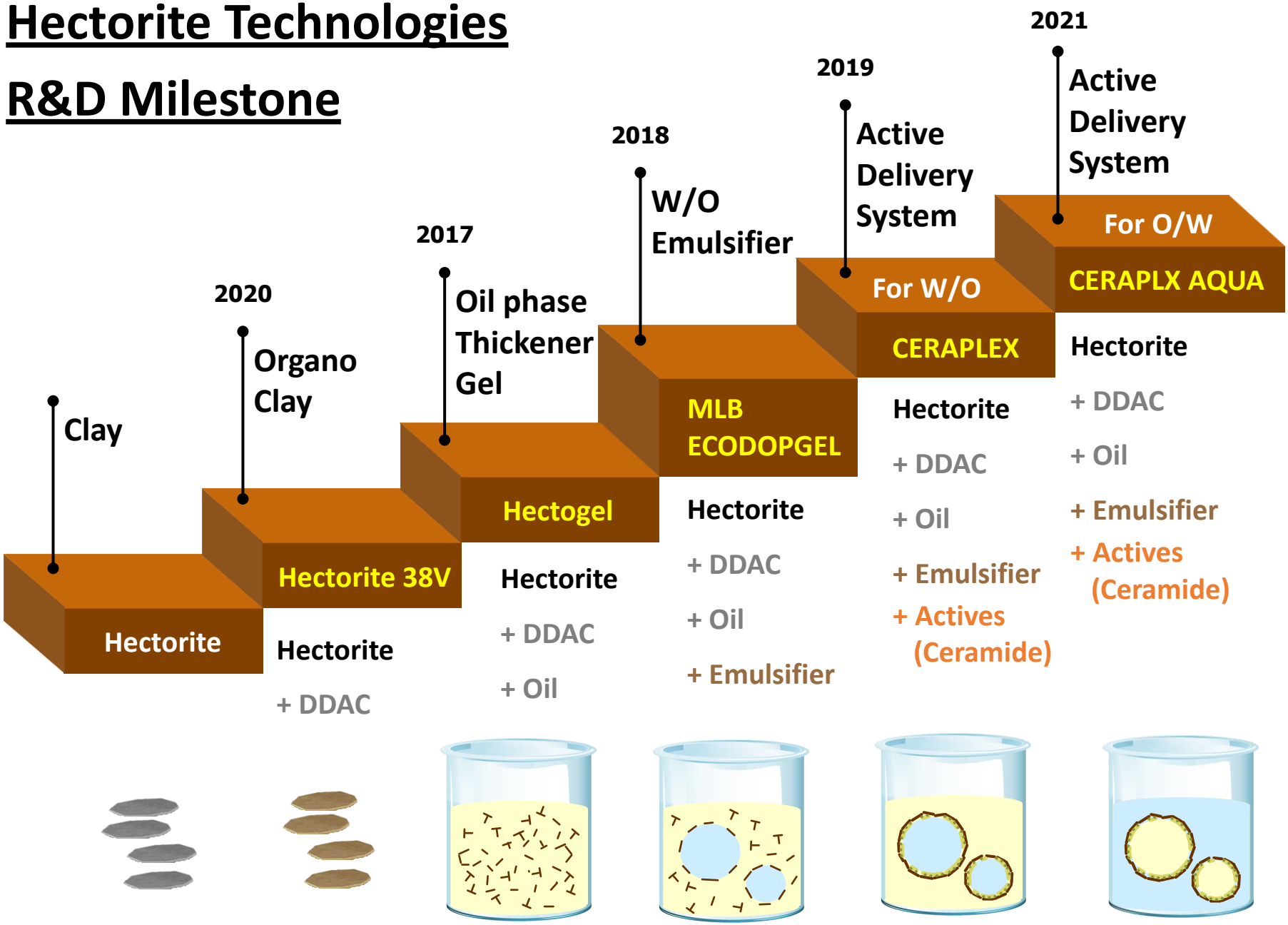


*CLSM: Confocal Laser Scanning Microscopy

*Lipid mixture: Ceramide (Cer), Phytosterol (Phyto), Stearic acid (SA)

Hectorite Technologies

R&D Milestone



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Have you ever seen high % Ceramide in W/O formula?

2016

By only adding Ceraplex 1.5%

2021

Ceramide 1500ppm