

# BioEstolides – Pigment Dispersion

By Sara Thormann, Jakob Bredsguard, December 11, 2020

At Biosynthetic® Technologies, we are a specialty ingredient company in the Beauty and Personal Care industry, that is dedicated to the health and safety of both our customers and the environment. BioEstolides are bio-based, biodegradable, sustainable and designed to still offer strong performance benefits so the personal care industry does not need to sacrifice performance in order to offer more sustainable ingredients in their higher end quality brands. BioEstolides have been designed to be thermally stable, oxidatively stable, and gentle on the skin

## Pigment Dispersion Evaluation and Findings

### 1. Summary

The objective of this report is to provide data on BioEstolide's ability to suspend and disperse common pigments used in personal care. BioEstolides 30, 250, and 1300 were blended with Zinc Oxide (micronized), Titanium Dioxide (micronized), and Iron Oxide (Red) at 5, 10, 15, and 20 wt%.

### 2. Materials

- BioEstolide 30: Biosynthetic Technologies (LOT# BT004-033-1)
- BioEstolide 250: Biosynthetic Technologies (LOT# AA-070003)
- BioEstolide 1300: Biosynthetic Technologies (LOT# JHA3-13FB)
- Zinc Oxide (Micronized): Making Cosmetics (LOT# EHRG2202)
- Titanium Dioxide (Micronized): Making Cosmetics (LOT# 0131234)
- Iron Oxide (Red): Making Cosmetics (LOT# 5607815)

### 3. Formulation

**Table 1.** Weight of products used in 50g samples.

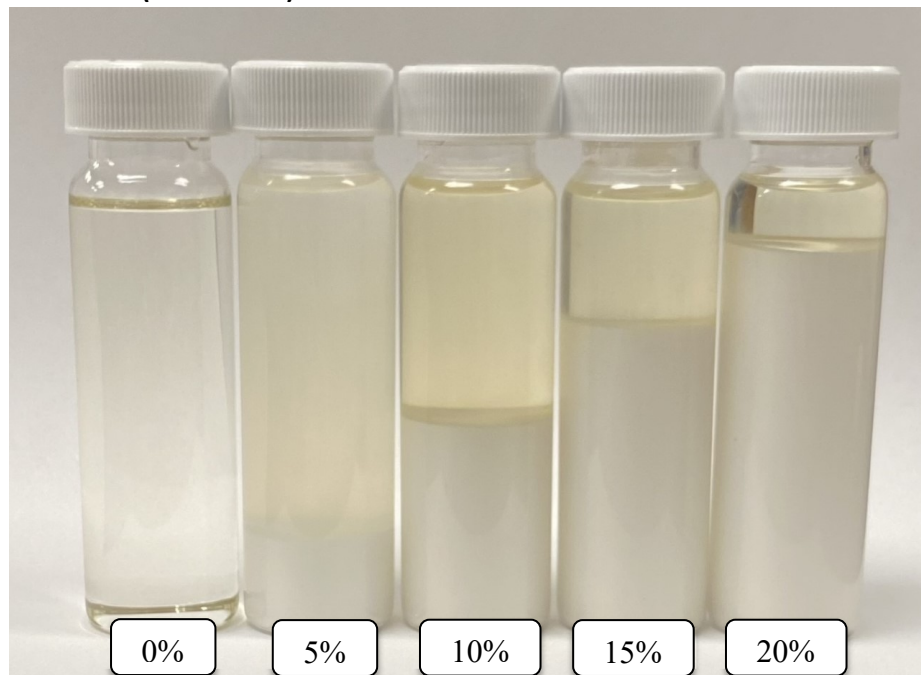
Pigment wt%	BioEstolide (30, 250, 1300) (g)	Pigment (ZnO, TiO <sub>2</sub> , Fe <sub>2</sub> O <sub>3</sub> ) (g)
0	50	0
5	47.5	2.5
10	45	5
15	42.5	7.5
20	40	10

#### 4. General Procedure

1. Weigh out 0, 5, 10, 15, 20 wt% mixtures of pigment with BioEstolide.
2. Mix samples with a stir bar for 10 minutes.
3. Pour samples into a 40 mL tube.
4. Let samples rest for 3 days.
5. Take photo documentation.

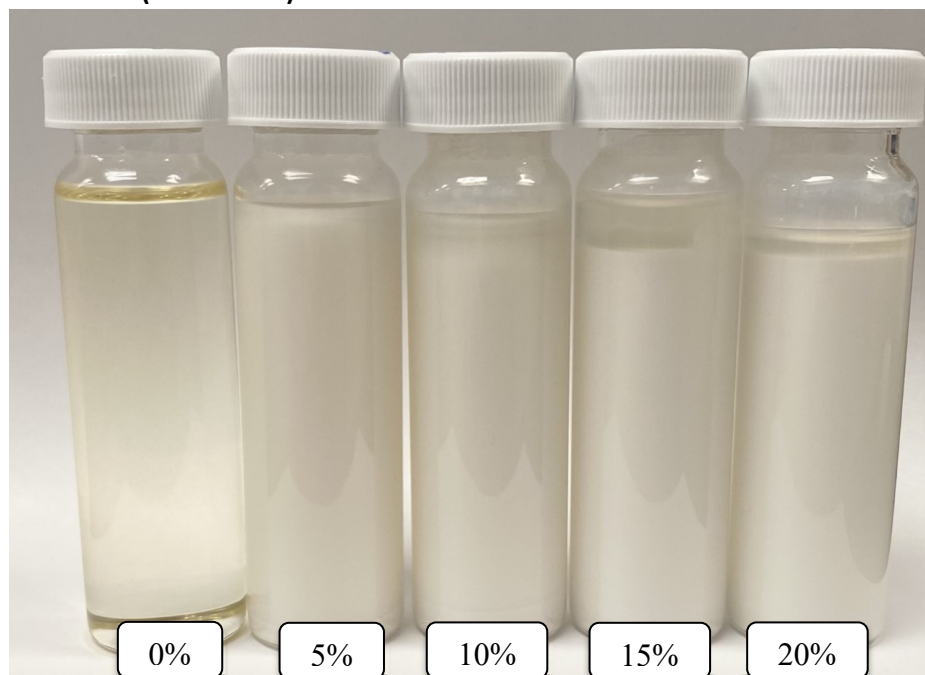
#### 5. Results

##### Zinc Oxide (Micronized) in BioEstolide 30



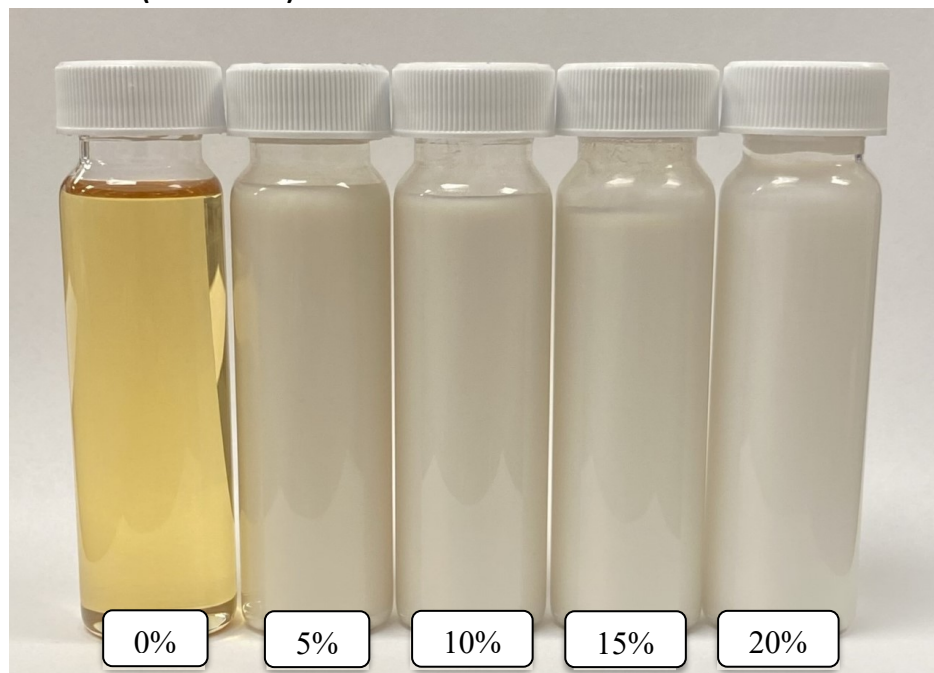
*\*Samples range from 0-20 wt% going from left to right.*

##### Zinc Oxide (Micronized) in BioEstolide 250



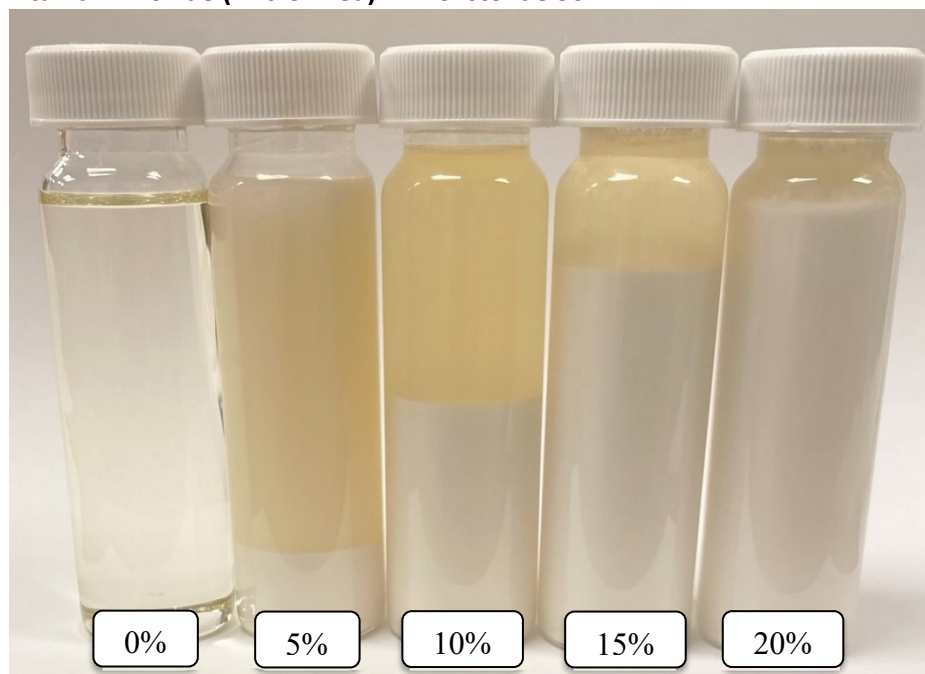
*\*Samples range from 0-20 wt% going from left to right.*

### Zinc Oxide (Micronized) in BioEstolide 1300



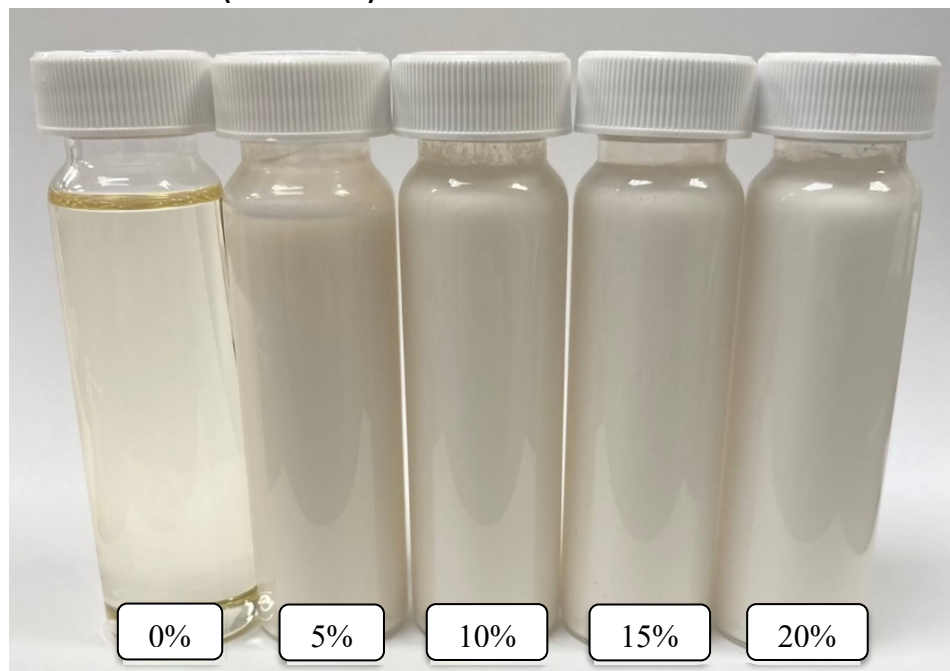
*\*Samples range from 0-20 wt% going from left to right.*

### Titanium Dioxide (Micronized) in BioEstolide 30



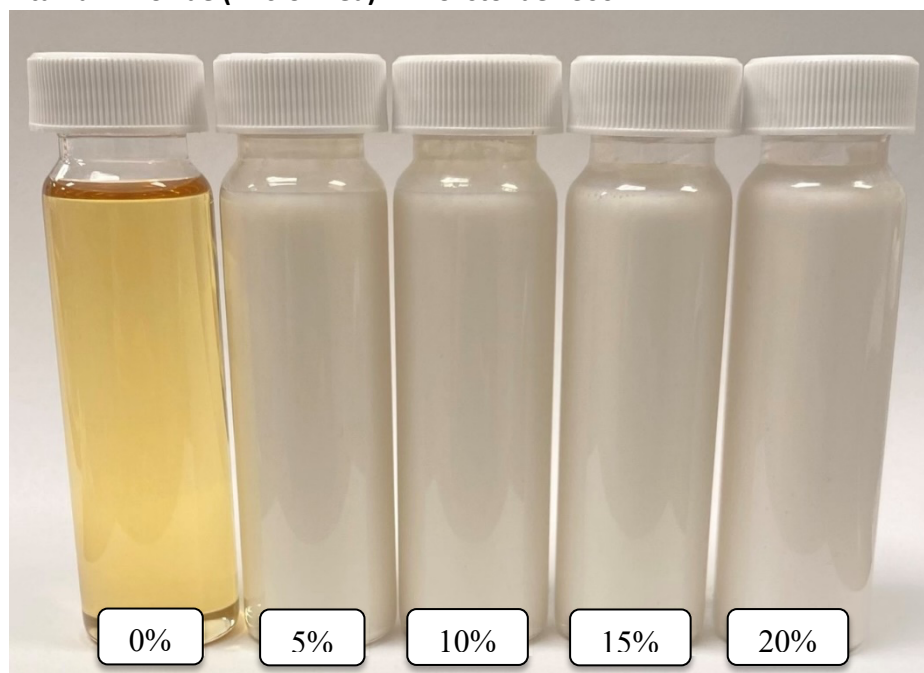
*\*Samples range from 0-20 wt% going from left to right.*

### **Titanium Dioxide (Micronized) in BioEstolide 250**



*\*Samples range from 0-20 wt% going from left to right.*

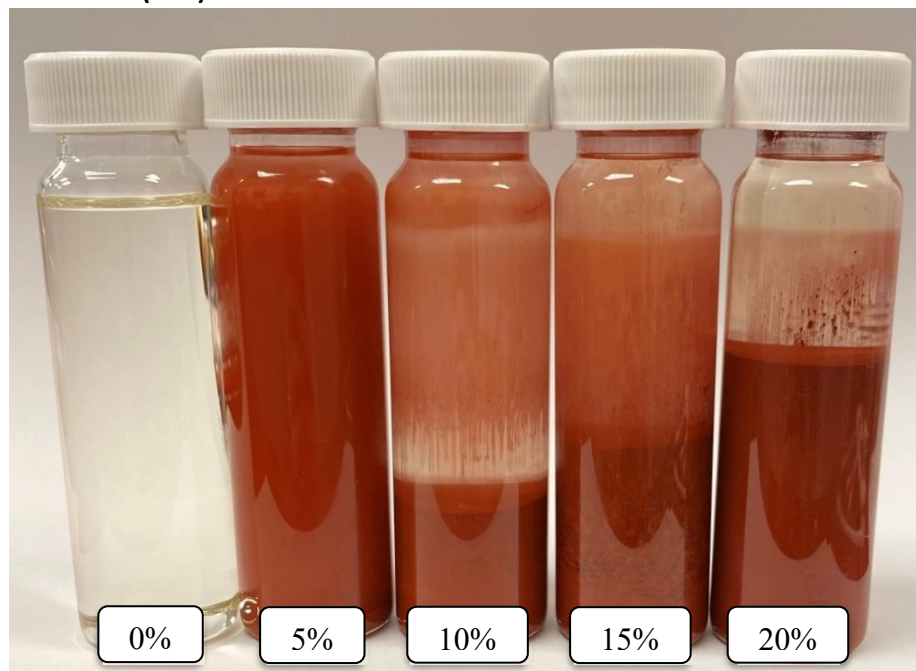
### **Titanium Dioxide (Micronized) in BioEstolide 1300**



*\*Samples range from 0-20 wt% going from left to right.*

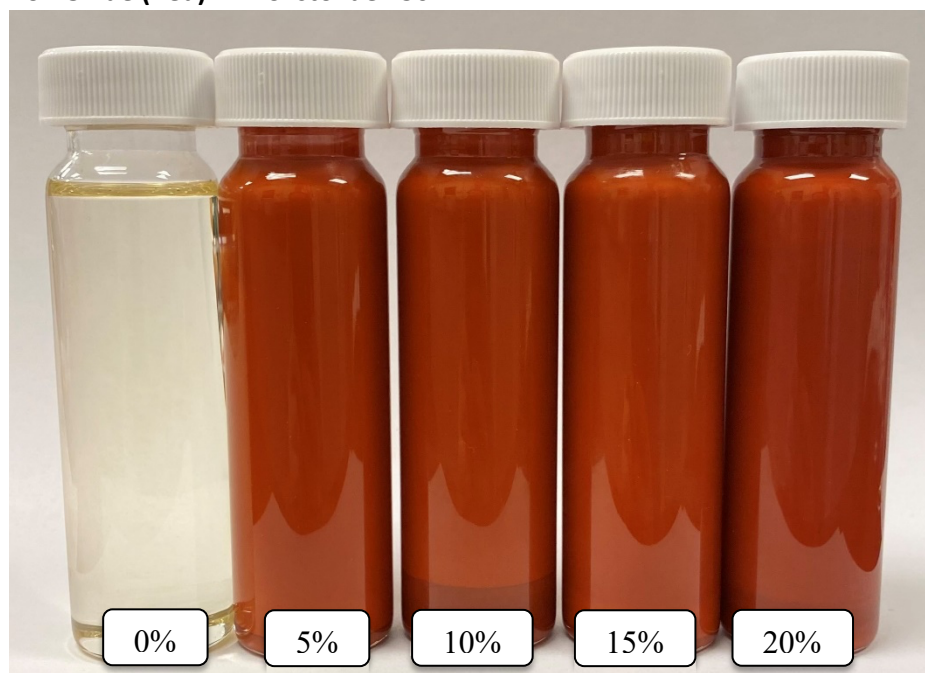


### Iron Oxide (Red) in BioEstolide 30



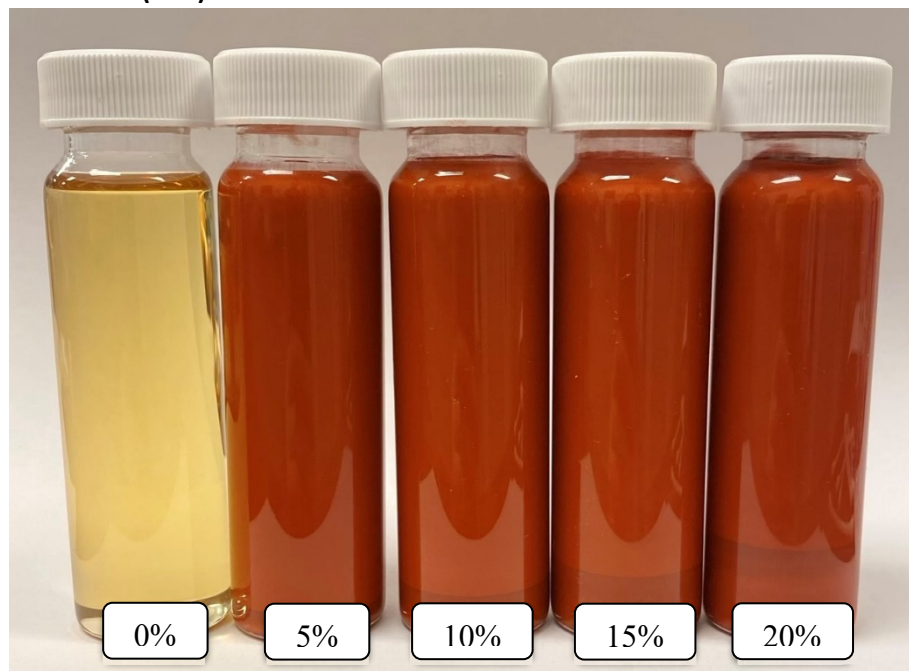
*\*Samples range from 0-20 wt% going from left to right.*

### Iron Oxide (Red) in BioEstolide 250



*\*Samples range from 0-20 wt% going from left to right.*

### Iron Oxide (Red) in BioEstolide 1300



*\*Samples range from 0-20 wt% going from left to right.*

### Conclusion

Overall, BE250 and BE1300 did a good job suspending pigments while BE30 often was too thin. There was some degree of settling with the higher weight percentages, but the pictures show that BE250 and BE1300 can suspend common pigments, especially for formulations using lower weight percentages.

### BioEstolide Technology

At Biosynthetic® Technologies, we are a specialty ingredient company in the Beauty and Personal Care industry, that is dedicated to the health and safety of both our customers and the environment. We strive to delivering innovations for a safe and sustainable future by are socially responsible and meet evolving consumer needs. Our unique products; BioEstolides™, are stable bio-derived oils from a natural non-GMO source with unique performance features. These renewable and biodegradable oils deliver high performance benefits as an emollient with enhanced stability, exceptional moisturization characteristics and a light, satiny feel. BioEstolide™ are multi-functional and not only enhance the feel and performance of other cosmetic ingredients, but they come with some powerful benefits of their own.

### BioEstolide Applications

Baby Care, Bath & Shower, Body Care, Color Cosmetics, Hair Shampoo, Hair Conditioner, Hair Setting Aid, Hair Relaxer, Hair Dye, Decorative Cosmetics, Skin Creams and Lotions, Depilatories, Ethnic Hair Care, Food & Pharma, Hair Cleansing, Hair Conditioning, Hair Styling, Hair Treatment, Household Cleaning, Lubrication, Make-up Remover, Pharmaceutical, Skin Care, Skin Cleansing, Tanners etc.

### Biosynthetic® Technologies

Biosynthetic® Technologies is committed to sustainability and focused on the responsible use of natural resources. We incorporate sustainability into both our products and manufacturing practices. We are constantly looking for ways to minimize [the] negative impacts on the environment while conserving energy and natural resources. Our objective is to make sustainability a point of difference for our business, and we are confident that this strategy will generate even greater benefits for the environment in which we operate, the people that we work with and the communities we are part of. We understand that health and environmental awareness play just as large a role for consumers as quality and efficacy. As such, we use natural feedstocks in our products and our manufacturing facility is operating with a NEGATIVE carbon footprint!