Clean Label Colors in Confectionery

Stephanie Calafat, Color Application Specialist
March 28, 2017
Clean Confectionery
What is my responsibility as a color supplier?

How do we overcome the challenges of using natural colors in confectionery?
Transparency & Transformation
Transparency & Transformation
Uniform definition of clean label

What does natural color mean?
How do we label natural color in confectionery products?
Transparency & Transformation
Skip the middleman

Synthetic Colors
- Controversial colors
- E/INS numbers (Europe)

Natural Colors
- Additives: selectively extracted from natural sources
- E/INS number (Europe)

Coloring Foods
- Clean colors / kitchen-like ingredients
- Short ingredient list
## Coloring Food Declarations

<table>
<thead>
<tr>
<th>Shade</th>
<th>Coloring Food</th>
<th>Natural Color</th>
<th>Synthetic Color</th>
</tr>
</thead>
</table>
| Purple Carrot Juice Concentrate  
Elderberry Juice Concentrate  
Blackcurrant Juice Concentrate  
Hibiscus Extract | Anthocyanins E163 | Red 40  
Red 3 |
| Red Beet Juice Concentrate | Betanin E162 | Red 3 |
| Red Bell Pepper Juice Concentrate | Paprika E160c | Yellow 6 |
| Orange Carrot Juice Concentrate  
Yellow Carrot Juice Concentrate | Carotene E160a | Yellow 5  
Yellow 6 |
| Pumpkin Juice Concentrate | Lutein E161  
Curcumin E100 | Yellow 5 |
| Malt Extract | Caramels (E 150a-d) | Red 40, Blue 1 and  
Yellow 5 blends |
| Spirulina Extract | | Blue 1  
Blue 2 |
Transparency & Transformation
Reactivity
Reactivity: Sharing Recipes

The importance of product trials

Multiple factors can impact the color of a finished product:
- pH
- Fat content
- Flavor
- Minerals

Developer Tip: red bell pepper is less sensitive to fat content

1% fat added to the fondant

Fondant colored with orange carrot concentrate

Fondant (1% fat added) colored with orange carrot concentrate
Reactivity: Sharing Recipes
Understanding interactions

Red Hard Candies
Anthocyanins

Low to high pH

Red Panned Candies
Stabilized beet and algal carotenoids
Transparency & Transformation
Reactivity
Usage Level
## Usage Level: Ultra Concentrated

*High performance natural colors*

<table>
<thead>
<tr>
<th>High dosage</th>
<th>Lake dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water activity</strong></td>
<td><strong>White compound chocolate</strong></td>
</tr>
<tr>
<td><strong>Off-note</strong></td>
<td><strong>Tablets</strong></td>
</tr>
<tr>
<td><strong>Cost-in-use</strong></td>
<td><strong>Non-bleeding confectionery</strong></td>
</tr>
</tbody>
</table>

---

**High Performance Natural Colors**
Transparency & Transformation
Reactivity
Usage Level
Shade Expectations
Shade Expectations

What does the future hold?
Shade Expectations

Light exposure and stability
Shade Expectations
Red 40 replacement

Light Stability

Allura Red/Red 40

Diana Solution: Red Radish Anthocyanins (19035)

Diana Solution has improved light stability compared to Red 40

Good color retention
Transparency & Transformation
Reactivity
Usage Level
Shade Expectations
Time & Temperature
Time & Temperature

Marshmallow production with carmine
Time & Temperature

Marshmallow production with red beet
Time & Temperature
Marshmallow production with red beet
Time & Temperature
Marshmallow production with red beet + chiller
How do I overcome the challenges of using natural colors in confectionery?

Transparency
Reactivity
Usage
Shade & Stability
Time & Temperature
WELL-BEING BY NATURE

For more information contact

Teresa Kilgore, Sweet Category Manager
tkilgore@diana-food.com