Pearlescent Pigments

Making Confections Sparkle

Pearlescent pigments add a luxury appearance to confections, with finishes ranging from metallic to silky and smooth.

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THROUGHOUT HISTORY, HUMANS have been fascinated with the luster of an oyster shell or a seashell, or the iridescence of a butterfly wing. The human reaction to this optical phenomenon is to value objects that have a natural shine as precious and beautiful.

Pearlescent pigments began in Paris in 1656, when a French rosary maker was able to isolate the silver substance found on the inner side of fish scales. From this a pearl luster suspension with a silver glow was produced. It became known as *natural fish silver*. In the 17th century, mother-of-pearl buttons became fashionable and were milled exclusively from snail shells and seashells. These buttons were highly valued in society and were a sign of wealth. A few years later polyester was introduced to the button-manufacturing market, which in turn brought on the search for synthetic pearl pigments. In the early to mid-1900s, basic lead carbonate and bismuth oxychloride began to replace the expensive fish silver and mother-of-pearl. However, the definitive breakthrough was in the 1960s with the invention of mica metal oxide pigments.

FDA-APPROVED PEARLESCENT PIGMENTS

There is a wide variety of components and metal oxides that can be used to create a pearlescent pigment. However, currently only one type has been permitted by the FDA for use as a color additive. On July 5, 2006, the Food and Drug Administration (FDA) listed the safe use of titanium-dioxide-coated mica-based pearlescent pigments as color additives in food. These color additives are manufactured by preparing a suspension of mica platelets, depositing titanium dioxide from a basic solution onto the mica, followed by calcination (at temperatures of 900°C and higher) to produce platelets of titanium dioxide on mica.

The regulation is listed in the Code of Federal Regulations, Title 21, Part 73.350. It falls under the listing of Colors Exempt From Certification; Mica-Based Pearlescent Pigments. Even though the pigment falls under the exempt classification for food colorants, the FDA has established purity specifications for the heavy metals of lead (Pb), not more than 4 parts per million; arsenic (As), not more than 3 parts per million; and mercury (Hg), not more than 1 part per million.

According to the regulation, the colorant may be

> safely used as a color additive in amounts up to 1.25 percent, by weight, in the following foods:
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> - Cereals
> - Confections and frostings