Kodak Process

YIELDS NANOPARTICLES AND SUPERIOR IMAGE QUALITY

Nanoparticle manufacturing holds promise for organic light emitting diode (OLED) technology.

OVERVIEW: BEFORE INFOIMAGING

When Kodak scientists in the 1930s began experimenting with silver materials as integral components of film and processing, they first prepared these materials as coatings—tiny particles, uniform in size and spherical in shape, applied to film to act as a light filter between two light-sensitive silver halide layers. The spherical particles in these applications were just a few millionths of a millimeter in size—9 to 11 nanometers, to be exact, making them nanoparticles. (For comparison, the width of a single human hair is 50 thousandths of a millimeter.)

INFOIMAGING IN ACTION

In the early 1980s, Kodak scientists began to explore other applications for nanoparticles, as well as the possibility and benefits of producing nanoparticles from materials other than silver. Today, nanoparticles are integral to a number of infoimaging technologies and applications—from Kodak film and paper (media) for consumer and professional use to vertical applications including health imaging, motion pictures and graphic arts. For example, inkjet printing is one application in which particle size and dispersion matter.

Smaller ink particles are less likely to clog inkjet nozzle heads and other printing devices. They also afford more control over where and how much color is deposited, leading to better definition and color saturation in printed media. In addition, smaller ink particles can make standardized graphic arts software (infrastructure) more effective because the nanoparticles lead to more accurate representations of the visual effects graphic designers hope to achieve. All these link more effectively in market application, because they are based on the same image science.

How are the tiny ink particles made? Kodak synthesizes organic compounds and dyes into large particles and, through a proprietary process that breaks down and disperses them evenly in a suspension (particles in liquid), the particles are milled to reduce the size and then used to create inks for printing applications (media). Kodak ink particles are as little as one-tenth the size of typical commercial ink particles, and tests show they are extremely stable, maintaining their dispersion even through freezing and thawing conditions.

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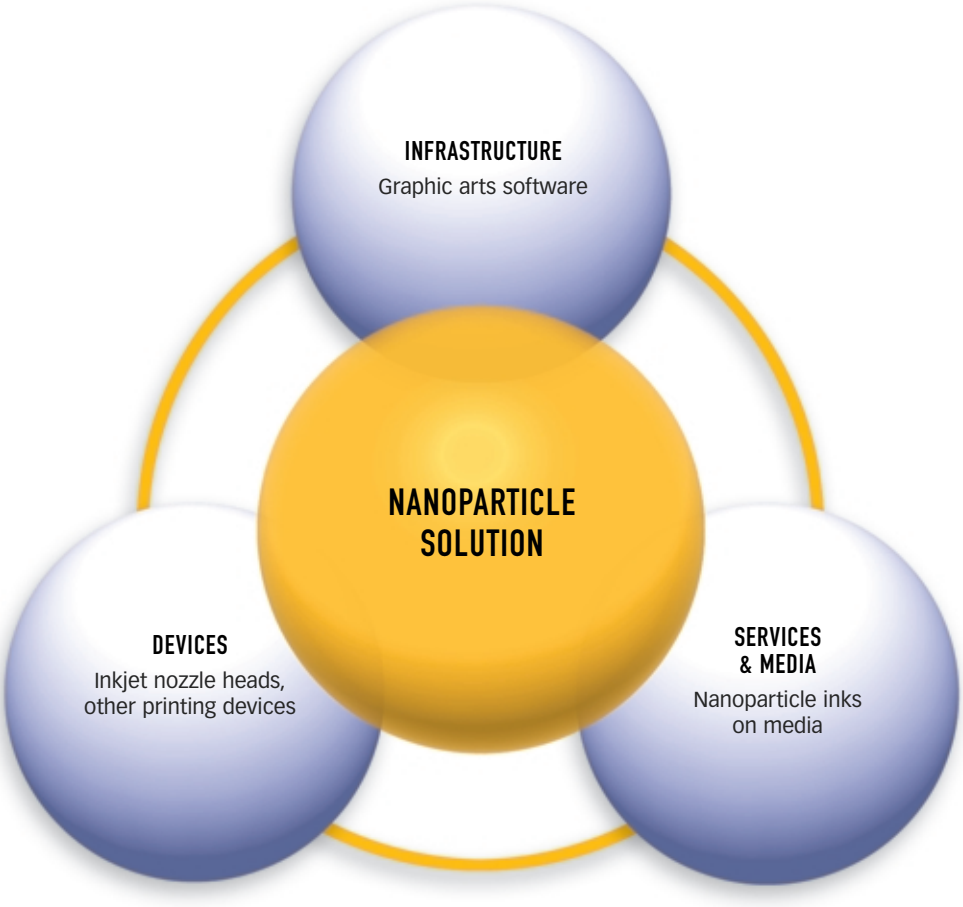

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Kodak scientists continue to pioneer superior process technology to support broader portfolios of novel, new nano-engineered materials that outperform those made by more traditional methods. The integration of these nano-particulate materials into products of the future, such as new display technology, new composite materials, and new health-care products, will offer significant enhancements to the quality of life as we know it today.

INFOIMAGING'S IMPACT

- Kodak's proprietary manufacturing process helps reduce the cost and time required to produce high-quality nanoparticle pigmented inks in volume.
- Nanoparticle manufacturing holds promise for new media and devices such as organic light emitting diode (OLED) technology, which uses extremely thin layers of organic compounds imprinted on silicon to create vivid, energy-efficient display screens with unlimited viewing angles. Kodak ink particles are as little as one-tenth the size of typical commercial ink particles, and tests show they are extremely stable, maintaining their dispersion even through freezing and thawing conditions.

For more information about infoimaging, go to:
www.kodak.com/go/infoimaging