

## ZEON Corporation Begins Construction of Polymerized Color Toner Facility

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April 13, 2004

On April 13, 2003, ZEON Corporation (President and CEO: Naozumi Furukawa; Chiyoda-ku, Tokyo) held a ceremony to mark the construction of a polymerized color toner facility within the Tokuyama Plant (Shunan City, Yamaguchi Prefecture). The new facility will be used to establish industrial-scale production technology for color toner and to produce samples for use in developing new markets and new products for sale. Scheduled for completion by the end of July 2004, this facility will be added to the existing polymerized monochrome toner facility to enhance the capabilities of the Tokuyama Plant.

ZEON Corporation is the first in the world to successfully manufacture polymerized monochrome toner, and in 1993, constructed a production facility at the Tokuyama Plant to begin commercial production of the toner. In 1998, ZEON Corporation successfully used the polymerization method to develop micro-capsule, low-temperature fixing toner. As sales steadily increased, a second facility was built in March, 2003, with an annual production capacity of 1,000 ton. Together with the first facility, total production capacity has now reached 2,500 tons annually.

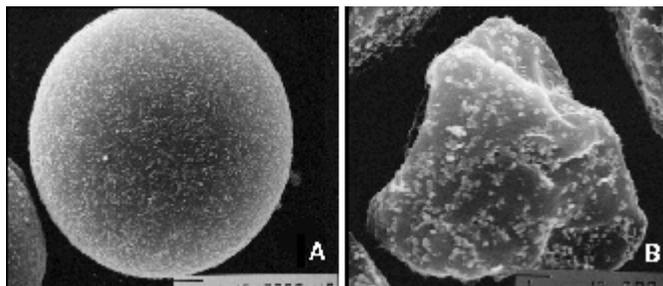
Polymerized toner employs a chemical reaction process that enables to produce fine, spherical particles without the need for the melting, mixing, or the crushing processes that consume large amounts of energy, used in the conventional pulverization method. As a result, not only can energy conservation be achieved in manufacturing the toner, but the toner's fixing temperature in target devices can also be lowered. In addition, since toner collection boxes may not be required using a cleanerless system that makes the best use of the excellent transferability properties of spherical toner, the polymerized toner is environmentally-friendly.

The use of color laser printers and color copy machines is rapidly increasing. Polymerized toner, which features high-resolution, high-quality and low energy consumption is most suitable for use in such devices. For this reason, the use of polymerized toner is likely to increase rapidly in the future. In light of this, ZEON Corporation also intends to expand its toner business further by entering into the color toner market, based on its accomplishments and its technology for monochrome polymerized toner which is acclaimed in the market.

### 1. Polymerized toner and Pulverized toner

Toner is a fine particle-like substance 5-10  $\mu\text{m}$  in diameter, and is classified into polymerized toner and pulverized toner according to the manufacturing methods. In manufacturing polymerized toner, the melting, mixing, crushing, or classification processes that consumes large amounts of energy in conventional pulverized toner production are no longer required.

Compared to the pulverization method which produces angular particles, the polymerization method easily produces fine particles of less than 7 µm in diameter. Since finished particles are spherical in form (see images) and each particle has a uniform diameter and composition, polymerized toner exhibits superior printing performance and image quality.



Electron microscope images: (A) Polymerized toner; (B) Pulverized toner

## 2. The Award of the Society of Polymer Science, Japan

In 2001, ZEON Corporation won the Award of the Society of Polymer Science, Japan for its achievements in the development and industrialization of polymerized toner.

### For further information

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