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**Daikin Succeeds in Developing OPTOACE™ HP Series  
Fluorinated Liquid Repellent**  
**Contributing to the production process innovation of color display device**

Daikin Industries, Ltd. has succeeded in developing OPTOACE™ HP series, a fluorinated liquid repellent used as an additive for resist agent (\*1) and will begin its sales from January 2010. The new OPTOACE™ HP series has a molecular structure with increased affinity for a resist agent, thereby providing liquid repellency without undermining the inherent performance of the resist agent.

The OPTOACE™ HP series demonstrates excellent liquid repellency when added to a resist agent used in the production process of electronic devices including color filters for color display devices. This new additive enables production of microscopic electronic devices with an ink-jet system that achieves a 50% cost reduction compared with the conventional production method.

The innovation of production process (\*2) for color filters has led to adopting the ink-jet system which requires less man-hour and excels in cost competitiveness. Electronic devices including color filters are becoming increasingly microscopic to a level of tens of microns (1 micron=0.001 mm). The ink-jet system applied in the production process of microscopic color filters requires a fine color pattern formed on a glass substrate with the resist agent which includes the liquid repellent. By adding OPTOACE™ HP series in a specified resist agent, the liquid-repellent portion that repels the special ink and the lyophilic portion to which the ink adheres can be predetermined with preciseness in the level of several tens of microns on the glass substrate which becomes the color filter.

This method solves the challenges of the conventional ink jet system such as spilling and unevenness during spraying, which enables color filters to be produced according to the color pattern.

Daikin started providing samples to a number of resist agent manufactures in Japan several years ago for evaluation. Marketing of this product for the color filter application will be the first of our efforts to expand the business of the liquid repellent for ink-jet process such as electrode for thin-film transistor (TFT) substrate, organic electroluminescence panel, and semiconductor. We will expedite our efforts in expanding its application opportunities in diverse fields and aim to achieve its sales of 3 billion yen in 2012.

## Supplementary explanation

### (\*1) Resist agent

A photosensitizing material used for forming a variety of color pattern on the surface of a glass substrate.

When the surface of glass substrate applied with the resist agent is irradiated with light in register with color pattern, the portion that has been exposed to light photosensitizes and solidifies. Upon removing the resist agent from the portion that did not photosensitize, the color pattern is formed on the surface of the glass substrate.

### (\*2) Production process innovation

The conventional manufacturing of color filter required process steps of exposure to light through a sheet with predetermined color pattern, development, formation of the color pattern on the surface of glass substrate and coating for the black matrix used to prevent color mixing and each of three primary colors of light (red, green and blue). The ink jet system enables simultaneous formation of a color pattern with pixels of red, green and blue, which leads to a significant reduction of process steps when used together with the black matrix process.