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DIC Corporation

DIC Develops a New Series of Pyrolytic Fluorosurfactants

—Groundbreaking new products that combine the surface smoothness achieved by fluorosurfactants with excellent recoatability—

DIC announced today that it developed and in autumn 2015 commenced full-scale sales of the *MEGAFACE DS* series of pyrolytic fluorosurfactants. A pyrolytic fluorosurfactant is one in which fluoro groups dissociate as a result of thermal processing. The *MEGAFACE DS* series comprises groundbreaking proprietary products that leverage key organic molecular design and polymer design technologies cultivated over many years.

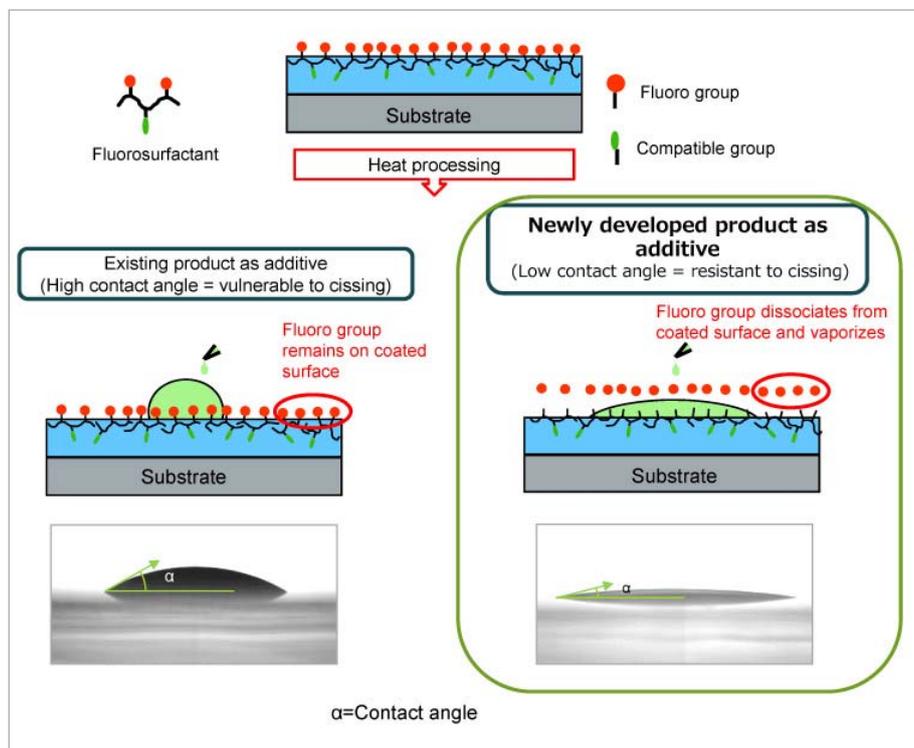
Fluorosurfactants are chemical compounds that possess fluoro groups, which make them highly effective in lowering surface tension of liquids, as a result of which they are used widely as additives (leveling agents) in materials manufactured for the electronics industry, including photoresists and coatings, which must deliver a high-precision smooth surface. However, fluoro groups oriented on the surface cause a significant reduction of coating film surface tension, which imparts water- and oil-repellant properties, giving rise to poor wetting with topcoats, cissing and other issues that hamper coating workability.

While boasting excellent leveling properties equal to those of existing DIC fluorosurfactants intended for use as leveling agents, products in the *MEGAFACE DS* series allow fluoro groups oriented on the surface to dissociate when heated to 200° C, thereby achieving a coating film surface tension comparable to that of provided by coatings with no fluorosurfactants. The result is a significant improvement in wetting with topcoats, which has the potential to enhance coating workability for customers.

Samples were provided to acquaint customers with the new series. The products received particularly high marks as a clear protective coating for color filters used in liquid crystal displays (LCDs), a market that is likely to benefit from the *MEGAFACE DS* series' performance features. Although fluorosurfactants are commonly used as clear protective coatings to smooth the uneven surfaces of color filters, poor compatibility with LC alignment coatings applied after patterning necessitates plasma treatment to remove fluoro groups. DIC's new products are thus expected to greatly improve coating workability by significantly reducing the time required for plasma treatment.

Performance Test with Solvent Used as Coating Material

Lower contact angle results in greater compatibility



With a view to expanding applications for products in this series to include, among others, flexible displays, which use substrate materials with low heat resistance, DIC is promoting R&D aimed at lowering the thermal dissociation temperature of fluoro groups. The Company is currently in the process of setting a concrete timetable for the production of a prototype new fluorosurfactant that decomposes at 150° C.

DIC is working to accelerate sales of markets for high-value-added products, with a focus on flat panel displays, and will strive to boost annual sales of pyrolytic and other fluorosurfactants to ¥1.0 billion by 2020. Having positioned polymers as its second core business after printing inks, the DIC Group will continue to press forward with efforts to reinforce the foundation of the business by developing products that meet the needs of its customers around the world.