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Mitsubishi Electric's "Smart Air Coating" Keeps Grime Off Metal & Plastic

Film protects materials from dust, dirt, ice and snow to maintain product quality

TOKYO, February 13, 2014 – <u>Mitsubishi Electric Corporation</u> (TOKYO: 6503) announced today it has developed a new technology, *Smart Air Coating*, which helps to keep metal and plastic products free of dirt mixed with water, snow or ice, and dry dust and dirt. The company plans to apply the technology in products as soon as possible.



Smart Air Coating forms a micrometer-level concavo-convex surface coating with super-water repellence to protect the surfaces of metal and plastic materials. Its superhydrophobe surface made of hydrophobic resin with nanometer particulates is applied on top of a reinforcing layer that contains coarse, micrometer-sized particles to form homogenous concavo-convex surfaces, which trap air. The acuteness of the surface's convex and concave angles is controlled by the size and shape of the coarse particles. As a result, the superhydrophobe surface forms a micrometer air film that prevents water permeation and inhibits the adhesion of substances including dirt, water, ice and snow.





Conventional No coating Smart Air coating coating

Smart Air coating repels dirt more effectively than conventional grime-prevention coatings.

Other Features

1) Highly practical

Coarse particles help to suppress electrostatic charges and the homogeneous air layer achieves a smooth surface, both of which help to reduce dust and water adhesion to a far greater level than possible with conventional super-water-repellent coatings. The air coating also reduces the adhesion of micro-droplets, such as mist.

2) Easy coloring and coating

The coating film, which originally is milky white, can be colored. The film simply can be sprayed onto products without the need for high-temperature heating, reducing the environmental load of the process.

3) Applicable to metals, plastics and more

Smart Air Coating can be used to form a protective film on various base materials, including metals, plastics and paper. The double layer consisting of the air film and reinforcing layer enhances adhesion between the coating and base material, and improves the coating's durability.

Mitsubishi Electric's existing antifouling coating technology, Hybrid Nano Coating, reduces the adhesion of various types of hydrophilic or hydrophobic dust. It is applied to the surfaces of products such as room air conditioners and ventilating fans to reduce grime, which can hinder the operational efficiency of such products. Smart Air Coating also inhibits the adhesion of water, snow or ice mixed with dirt, which can further degrade operational efficiency as well as appearance.

<u>Trademarks</u>

Mitsubishi Electric Corporation has registered "hybrid nanostructured coating" as a trademark and has applied to register "smart air coating" as a trademark.

Patents

Pending patents for the technology announced in this news release number seven in Japan and four abroad.

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About Mitsubishi Electric Corporation

With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 3,567.1 billion yen (US\$ 37.9 billion*) in the fiscal year ended March 31, 2013. For more information visit http://www.MitsubishiElectric.com

*At an exchange rate of 94 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2013