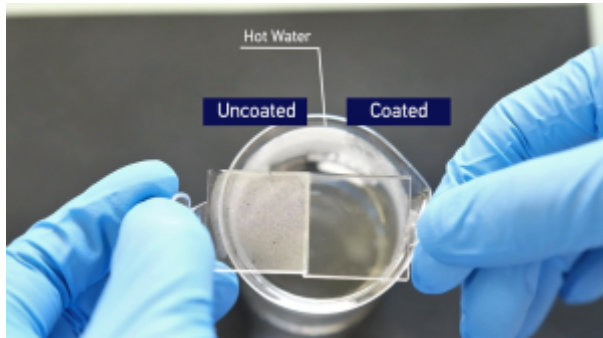


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A Self-Cleaning, Anti-Fogging Coating

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Nanyang Technological University (NTU Singapore) scientists have developed a new self-cleaning, **anti-fogging** coating for plastic surfaces.

sprays and wipes are temporary as they cannot withstand washing and must be reapplied regularly.

Moreover, they are prone to surface contamination by dirt or bacteria, which means replacement or maintenance is necessary.

And to make matters worse, such coatings have long fabrication processing time and poor durability which translates to weak adhesion between the plastic surface and the coating.

The NTU team led by professors Chen Zhong and Rajdeep Singh Rawat has now come up with a new coating which offers an attractive, long-term solution to overcome issues of plastic fogging that may also reduce costs and waste.

According to the scientists, their durable coating consists of a thin double layered silicon dioxide-titanium dioxide film which is applied through a two-step technique.

First, the plastic surface is treated with oxygen plasma, which is a common industrial method to clean surfaces to improve adhesion.

The thin double layered film is then deposited on the plastic surface using pulse laser deposition.

According to the scientists, their new approach offers better control of the film's thickness and structure during fabrication, compared to similar industrial methods, and results in a higher quality film.

In lab tests of its 'self-cleaning' ability, the newly developed coating was able to break down contaminants on the plastic surface after a full day of ultraviolet light exposure.

This makes it best suited for industrial applications of various optical components, such as surveillance camera protective covers, notes Rawat.

“The ability for the coating to ‘self-clean’ makes it a low-maintenance and trouble-free solution since the 3 cover may be less obscured by surface dirt and grime, providing a clearer view for surveillance.”

According to the scientists, the coating is also anti-reflective with a superior visible light transmittance of up to 89% on a regular plastic lens – about 5% better than the same lens without a coating.

This is particularly useful for use in eyeglasses, as higher visible light transmittance allows for more light to travel through the plastic and reach the eye, allowing greater clarity.

Image and content: NTU Singapore