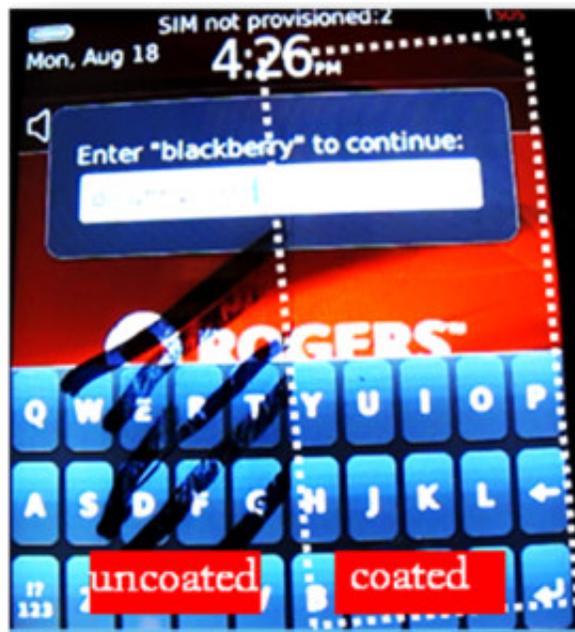
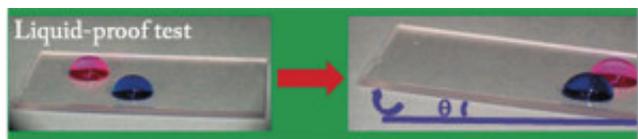


A new technology welcomes you in smudge-free world



Windows, walls, and automobile interior repelling smudge are no longer a dream. A new paint has been invented at Queen's University (Kingston, Ontario, Canada), which will reduce fingerprints deposition on glass, prevent graffiti/acid rain from historical statues, and reduce corrosion of metals and ceramics. Till to date, fluorinated-materials were used to obtain anti-smudge coatings. However, fluorinated-materials are not only expensive but are of environmental concern. The newly invented paint developed by a trio of scientists, Dr. Muhammad Rabnawaz, Prof. Guojun Liu (Principal Investigator), and Dr. Heng Hu, is fluorine-free but still repel oil and water based contaminants. Here, poly(dimethylsiloxane) (PDMS), a biocompatible silicone oil, has been used to replace the expensive fluorinated materials.

This new approach involves the embedding of siloxane oil into a cross-linked polyurethane film. Polyurethane, is an inexpensive polymer that sticks firmly to a variety of substrates including glasses, ceramics, metals, and fabrics. The siloxane oil forms a thin liquid film on the polyurethane surface. When another liquid such as water or oil, is dispensed on the surface of these paints, the liquid slides off because the slippery (lubricating) thin liquid film cannot grab the liquid.



The new paint can be prepared at a layer thicknesses of tens of micrometers without compromising the desired optical clarity. The coatings is stable against extensive wearing. The researchers successfully applied this coating onto a smart-phone screen, which did not affect the display quality or touch screen sensitivity. Consequently, this paint can be potentially applicable to approximately

8 billion touch-screen electronic devices currently available in the market. Also, the glass windows will be kept clean with these coatings that will help to cut down the cleaning costs.

This new coating can be applied to a variety of substrates such as glass, wood, fabric, metal, and ceramics via dip-coatings, spray-coating or dispensing on their surfaces.

Publication

[Fluorine-Free Anti-Smudge Polyurethane Coatings.](#)

Rabnawaz M, Liu G, Hu H

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