



TECHNICAL DATA SHEET

INVISIPRINT® MBED™

ANTI-SMUDGE COATING WITH EMBEDDED ANTIMICROBIAL PROTECTION



OVERVIEW

InvisiPrint MBED is an ultra-thin anti-fingerprint and antimicrobial coating. InvisiPrint reduces the visibility of fingerprints on glass and metal oxide surfaces while MBED keeps InvisiPrint clean by reducing stain and odor causing bacteria by greater 5-log according to ISO22196.

InvisiPrint MBED is the result of the integration of two technologies into a single coating. In contrast, typical traditional Anti-fingerprint coatings are fluorine based, only make fingerprints easier to clean, and do not have antimicrobial performance. NBD used an EPA approved active ingredient and customers are able to make preservative marketing claims through treated article exemption.

APPLICATIONS

- Mobile devices, Laptops & tablets
- Screen protection
- Point of sale/ordering systems and kiosks
- Eyewear
- Infotainment systems and Appliances
- Other glass, metal oxide, and ceramic surfaces

INVISIPRINT TECHNOLOGY

NBD's proprietary invisible fingerprint technology, InvisiPrint, is a silane based thin film coating. The technology works by creating a highly oleophilic surface that spreads fingerprint oil into a uniform film. When light passes through the thin film of oil there is very little diffraction or reflection, and thus the fingerprint is not visible. InvisiPrint generates a durable chemical bond on glass and metal oxide surfaces for long-term performance. The coating can be applied by spraying, dipping or wiping, using the existing infrastructure of most customers' AF coating equipment.

MBED Technology

NBD's proprietary MBED technology takes advantage of non-leaching copper ion, which has long been shown to be highly antimicrobial. By creating a uniform thin film, the surface is sufficiently populated with copper ions to have ultra-high anti-bacterial performance. Other antimicrobial approaches for glass require ion infusion into the glass by chemical etching, an expensive process that must be done by the glass manufacturer such as sintering metal particles into glass at high temperatures. Further, if the customer wants anti-fingerprint in addition to antimicrobial, the customer must require two distinct coating processes, driving up cost considerably. NBD's MBED technology is seamlessly blended with NBD's InvisiPrint to create a one-of-a-kind product that simultaneously addresses both customer requirements.



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TECHNICAL SPECIFICATIONS

CHEMISTRY
Chemical Family: Organosilane
Storage: Room Temperature and keep away from exposure to direct sunlight
Shelf Life: 1 year for pure material, 2 months for concentrate, and 1 week for final diluted product
Solvent: Ethanol

MATERIAL CHARACTERISTICS
Thickness: 3-5 nanometers
Fingerprint Hiding: <0.35 Delta E (800% improvement over PFPE anti-fingerprint coatings)
Static contact angle: Water: 85°, Diiodomethane: <40
Antimicrobial performance: 99.9998 (5.8 log) when tested under ISO 22196
Eraser Abrasion: \geq 60 degree contact angle after 3,000 cycles (1kg weight, Minoan eraser)
Antimicrobial performance after 3,000 cycles eraser abrasion: 99.999% (>5.0 log) under ISO 22196
Coefficient of friction: 0.10
Transparency: \geq 93%
Fluorine Free
Pencil Hardness: 9H on glass

SPRAY APPLICATION CONDITIONS
Atomization pressure: \geq 150kPa
Nozzle Height: \geq 8cm
Flow Rate: 10ml/min
Nozzle scan speed: 750mm/s
Curing: 30 minutes @ 120 degrees Celsius

**FINGERPRINT HIDING CALCULATED USING PCM INSTRUMENTS COLORIMETER TO DETERMINE DELTA E

DISCLAIMER:

ISO 22196 results are insufficient to make EPA approved Health Claims. This product is not registered with the EPA to make Public Health Claims.