



PRODUCT DATA

Overview

NANOPRINT™ is a transparent anti-fingerprint nanocoating that reduces the appearance of unsightly smudges, and other contaminants up to 70%. Its easy-to-clean functionality significantly decreases the time to clean, allowing anything remaining to be simply wiped away with a dry cloth.

Beyond aesthetics, NANOPRINT increases products' flexibility and durability. The one-coat spray application delivers superior cost/performance ratio compared to similar market offerings. MetaShield products are proudly made in the USA using ISO 9001 manufacturing.

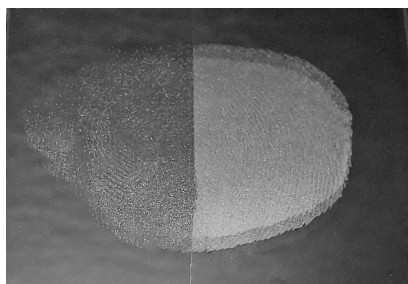
Benefits

- Fingerprint Resistant
- Increased Cleanability
- Durable/Flexible
- Transparent/Ultra-Thin
- One-Coat Spray Application
- Cost-Effective
- Improved tactile experience for end users

Applications

- Auto Interior / Gauges / Nav Screen
- Architectural Glass/Mirrors
- Appliances
- Sensors / IoT
- Electronics
- Retail Display Cases
- Publicly Accessed Structures
- Touched-Based Screens
- Windows

GENERAL	Substrate	Glass
	Optimal Film Thickness	100 nm
	Coverage / Liter (Approx.)	28 m ²
	Index of Refraction @ 590 nm	1.49
	Visible Light Transmittance (400–700 nm)	92.6 %
	Cure Method	100 °C for 5 min
	Cheesecloth Abrasion (MIL-C-48497)	0.0 % Δhaze
DURABILITY	UV Extended Exposure (3 years)	Pass
	Crosscut Tape Test (ASTM D3359-02)	5B
	Pencil Hardness (JIS K5600-5-4)	4H
	Humidity Prolonged Exposure	Pass
	Thermal Cycling (ASTM D6944-15)	Pass
	Heat Tolerance	350 °C
	Chemical Resistance	Mild Acid/Bases
	Water Immersion (24 hrs)	Pass



Left image: 1/2 NANOPRINT coated and 1/2 uncoated slide.

Right image: Same slide after 2 gentle wipes with a paper towel.



APPLICATION

Surface Preparation

- Surfaces must be completely cleaned with an appropriate solvent or cleaner for proper coating. Any surfactants, oils, dirt, smudges, watery residue, etc. will result in poor coating quality.
- Use compressed air to remove loose particles/debris on the surface.

Mixing

RATIOS TABLE

	% Weight	Weight Per 1 Kg	% Volume	% Volume Per 1 Ltr
Part 1	41.4	414 grams	40.2	402 ml
Part 2	58.6	586 grams	59.8	598 ml

Note:

Sample kit containers will be labeled M and 2; they contain the correct premeasured amounts per these ratios.

Step 1

Place the desired amount of Part 1 from container labeled 1 in low-density polyethylene (LDPE) or stainless steel mixing container.

Step 2

Add appropriate ratio of Part 2 from container labeled 2 as shown in Ratios Table. For sample kit, please put all of Part 2 into container M for mixing.

Step 3

Stir at medium RPM, or agitate at medium intensity, for 1 hour in ambient temperature and humidity to create the necessary chemical reactions. **

**Keep the caps/lids on all containers when not in use.

Application

- Application and drying in dust-free environment strongly recommended.
- NANOPRINT is designed to be sprayed without thinning. Filter the solution through a 0.45 µm polypropylene or PTFE filter before spraying.



APPLICATION

- Spray at ambient temperature and humidity. Apply the wet coating to achieve a thickness between 70-200 nm Dry Film Thickness (DFT). Use a multiplier of 146 to calculate wet film thickness for a desired DFT. For example, for a 100 nm DFT: $100 \text{ nm} \times 146 = 14600 \text{ nm} = 14.6 \text{ um}$ wet film thickness.
- Example setup with Low Volume Low Pressure (LVLP) air atomizing sprayer
 - Distance from substrate: 6.4 cm Fluid flow: 3.5-4.0 ml per minute
 - Travel speed: 2.4 cm per second Atomization pressure: 14 psi
- Coverage for the 70-200 nm DFT range is 28 m^2 - 18 m^2 per liter. Thicknesses below this range may result in loss of performance; thicknesses higher may result in hazing or cracking under extreme heat.
- Apply via overlapping passes so long as the first pass does not dry before the second pass comes back across as it does not adhere to itself once the first coat/pass has dried.
- If dip coating, please contact Metashield for instructions.

Curing

Step 1

Air-dry coating until dry-to-touch in a clean, dry environment for 3-5 min.

Step 2

Cure at a minimum of 100 °C for at least 3-5 minutes; higher temperature and longer times will increase durability.

Clean Up

- Uncured NANOPRINT should be cleaned immediately from equipment and surfaces with isopropanol CAS 67-63-0 or acetone CAS 67-64-1.

Storage And Shelf Life

- The pot life of final mixed solution is ≤ 15 days. A longer pot life may be possible if the final mixed solution is stored at 3-8° C.
- The shelf life of NANOPRINT Part 1 and Part 2 is a minimum of 12 months if stored in their original unopened containers at 20-25 °C. For longer shelf life, Part 1 and Part 2 may be stored at 3-8° C.



APPLICATION

Helpful Links

Product Data & Application Instructions are periodically updated to reflect new information relating to the product. It is important the customer obtains the most recent version for the product at: [PRODUCT AND APPLICATION DATA](#)

Contact Customer Support

Tel: 212.938.3699

Email: support@metashield.com

Additional Information

SAFETY AND CAUTIONS

Customer accepts all responsibility for the proper and safe handling, application, ventilation, cleanup, storage, and disposal of NANOPRINT and associated thinning and cleaning chemicals. Please see the applicable SDS for details on hazards, precautions and safety recommendations.

WARRANTY

Metashield warrants (I) its title to the product, (II) that the quality of the product conforms to MetaShield's specifications for such product in effect at the time of manufacture and (III) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT METASHIELD MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OF USE, ARE DISCLAIMED BY METASHIELD. Any claim under this warranty must be made by Buyer to Metashield in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify Metashield of such non-conformance as required herein shall bar Buyer from recovery under this warranty.

LIMITATIONS OF LIABILITY

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