

NanoSlic[®] NS 1200 Wheel Coating

INTRODUCTION

NanoSlic NS 1200 is a revolutionary hybrid ceramic coating based on proven NanoSlic technology. NS 1200 is specifically formulated to give unprecedented protection to automotive and truck wheels, whether painted, coated or base metal. NanoSlic imparts a unique range of beneficial properties. It provides a contact surface that is hydrophobic, oleophobic, UV and chemically resistant. NS 1200 will protect from brake dust, oils, tar and impart a self-cleaning effect. Due to its ultra-high temperature resistance NS 1200 can be used to protect brake calipers. No other coating offers the level of repellency and toughness of NanoSlic!

ATTRIBUTES

- Outstanding Hydrophobic and Oleophobic Properties
- Will Repel Water, Organic Materials, Brake Dust
- Imparts "Self-Cleaning" Property
- Forms molecular bond with painted or metallic surfaces.
- High Film Hardness, Significantly Harder than OEM coatings
- Flexible
- Temperature Resistant to 500°F
- Clear, Glossy finish

TECHNOLOGY

NS 1200 is a hand-sprayed ceramic coating based on revolutionary NanoSlic technology. The coating chemically bonds to the surface while forming a hydrophobic and oleophobic layer to protect coated and bare metal surfaces and enhance gloss. NanoSlic has a robust, abrasion resistant surface that stands up to repeated cleaning.

PRE-CLEAN

The paint or metal surface should be completely clean of foreign materials. Painted surfaces should be cleaned to the level required for a superior paint application. If new, and not exposed to exterior conditions, clean with a no-residue car shampoo, rinse, dry and then wipe with isopropyl alcohol. Wheels that have been on the road may require additional cleaning prior to IPA wipe down. Bare metal surfaces can be cleaned with NS 50 alkaline pre-clean solution. See NS 1200 Application Guide for more information.

APPLICATION

**See NS 1200 Application instructions for more detailed information.*

CURING

NanoSlic will dry to tack free in 20-30 minutes. Do not disturb the coating or re-coat during this time. The coating begins to cure as soon as solvents begin to evaporate. The coating will reach 7H hardness after 18 hours and will fully cure to 9H hardness in 3 days at room temperature.

TEST RESULTS

Physical Properties	Values
Appearance	Clear High Gloss
Specific Gravity @ 23°C	1.02 g/cm ³
Viscosity @ 23°C	3-5 cP
Nonvolatile content	21-23%
Static contact angle, water	105 Degrees
Dry Time	20-30 minutes tack free
Film Thickness	2-4 microns
Pencil Hardness	9H

ENVIRONMENTAL

NanoSlic coating solvents are not classified as VOCs and have been determined not to add to global warming. They use no Perfluorooctanoic acid (PFOA), a substance currently being investigated by the EPA. NanoSlic coatings are ECNA, REACH, RoHS and RoHS II compliant.



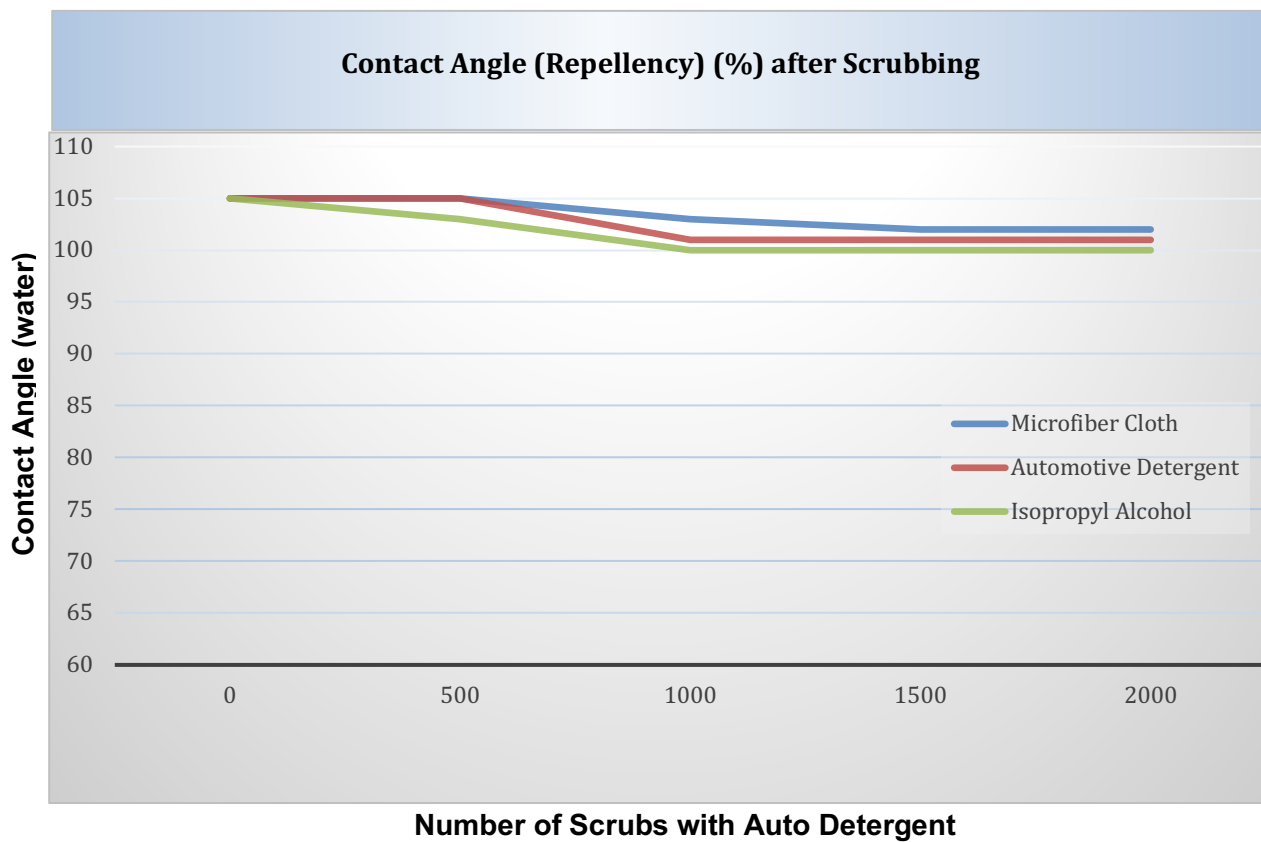
ADDITIONAL TEST DATA

Property	Test/Specification	Result
Static Contact Angle, water	ASTM D7490	105
Static Contact Angle, n-hexadecane	ASTM D7490	63
Roll-Off angle		20°
Pencil Hardness	ASTM D3363	9H*
Refractive Index		1.4
Water Vapor Permeability		0.02 g/100 sq. in./day
Adhesion, Cross Hatch	ASTM D3359, method B and DIN Standard No. 5315	5B (no loss)
Scrub Resistance	D2486, Car Wash, 1500 Scrubs, Retention of CA	98%
Temperature Resistance	NanoSlic Internal	400°F/200°C
pH Resistance	pH 2-12, 4 hours @ 72°F/23°C	No Change
Film Thickness		2-4 microns
Solvent Resistance	Most Solvents 24 hours @ 72°F/23°C	No attack
Salt Fog Resistance	ASTM B117-18, 500 hours	Pass
UV Resistance	QUV, ASTM G154-16, 500 hours	Pass
Flexibility	Mandrel Bend, ASTM D522-17, Method A	Pass, (No loss, cracking)



ASTM D2486 SCRUB TESTING

NanoSlic NS 1200 retains its repellency after repeated scrubbing with various materials. Data from ASTM D2486 scrub testing is shown below.

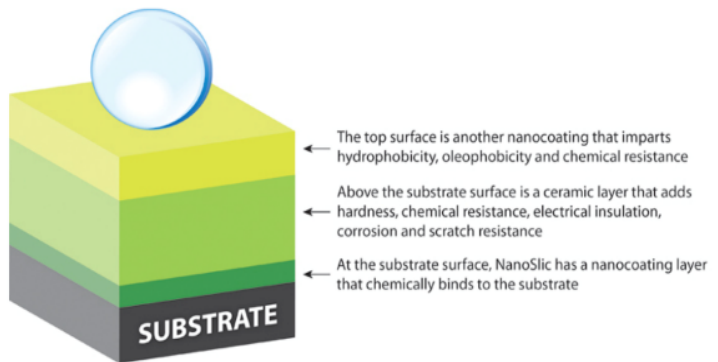


NANOSLIC TECHNOLOGY

NanoSlic is a ceramic coating that is both hydrophobic and oleophobic. NanoSlic integrates three functional layers that form upon application. At the substrate interface, NanoSlic has a nanometer thick layer that chemically binds to the substrate. Above that is a ceramic layer that adds hardness, chemical resistance, electrical insulation, corrosion and scratch resistance. The top surface imparts hydrophobicity, oleophobicity, and chemical resistance. NanoSlic can be defined as a "hybrid" coating, combining the benefits of a ceramic coating and a nanocoating.

NanoSlic's unique hybrid structure works in 3 ways:

- Forms a dense network of strong chemical bonds to the substrate
- Forms an inert, high-performance binder polymer layer
- Forms a highly hydrophobic and oleophobic contact surface



NanoSlic's unique structure and chemical composition prevent normal degradation when applied to many surfaces. This means greater efficiency, reduced maintenance, longer life and ultimately significant cost savings. NanoSlic not only adds physical protection to surfaces but also contributes to a cleaner cosmetic appearance.

NanoSlic is largely composed of silica, structured with silica bonds. As such, NanoSlic materials are inherently capable of maintaining properties at temperatures well beyond non-ceramic polymers. NanoSlic coatings are resistant to most solvents and will be unaffected by a wide range in pH. Because 9H hardness is achieved in most NanoSlic formulations, significant scratch resistance is improved. By incorporating specific functional groups to the polymer, various properties can be achieved including ambient temperature curing, heat-induced crosslinking and other physical properties. Interesting and useful surface effects can be achieved such as NanoSlic's characteristic hydrophobicity and oleophobicity.

Low surface energy and ceramic structure make NanoSlic a unique nanocoating. NanoSlic is a revolutionary coating technology that offers many of the benefits of "advanced ceramics" but does not require a high cost, multi-step process that includes "firing." NanoSlic can be applied to a wide variety of surfaces. The required thickness of the coating will depend on the application and the desired result. NanoSlic protects and enhances surfaces of metals, glass, ceramics, polymers and coatings and many plastics. It is scratch resistant and creates a surface that is easy to clean. Curing takes place at room temperature or can be accelerated with heat.



SURFACE PREPARATION

Surface preparation is critical to achieving a permanent bond and quality application.

1. If possible, remove wheel from vehicle and stand upright for coating. Otherwise protect adjacent areas from overspray as needed.
2. Prepare surface by removing loose paint, dust, dirt, rust, grease, wax, other coatings, etc. An aggressive brush and degreasers may be necessary. Fine sandpaper may be used if it is desired to scuff the clearcoat, but this is not necessary to achieve a good bond. You are essentially applying a new clear coat so prepare accordingly. Whatever contaminants are on the wheel will be locked in by the NanoSlic coating.
3. Wash with soap and water, making sure there are no remaining particles. Rinse and dry completely.
4. Wipe thoroughly with isopropyl alcohol and dry.

IMPORTANT:

NS 50 PreClean Solution is required when applying NS 1200 over bare metal and should be applied after degreasers or soap. This will activate the metal surface for proper adhesion.

5. For bare metal surfaces: Use NS50 PreClean Solution. Follow directions carefully. For other surfaces: For example, polymers and other coatings, isopropyl alcohol can be used as a final cleaning.
6. Mask-off surrounding areas with painter's tape or masking tape to protect from overspray.



APPLICATION

1. Follow the directions for assembly of the Preval Professional Spray Kit
2. Hold can parallel and keep 10-12 inches from surface using an even, sweeping motion. Start while the spray is pointed away from the object and then move toward the surface to be coated. Overlap parallel layers slightly. If the surface is curved or other, follow that shape.
3. Apply 1 light coat, followed by 2-3 or more medium wet coats to build desired coating thickness. Allow coating to dry 1 minute between each coat.



Coats	Desired Dried Thickness (μm)
1	1-4
2	4-7
3	7-10
4	10-14

4. Carefully remove tape and masks while the last coat is still wet to achieve clean lines.
5. Right after coating, the parts should be stored away from any dust. If the wheels are coated on the car/truck, keep the vehicle indoors away from dust until cured.
6. NS 1200 will dry to tack free in 30 minutes. DO NOT disturb the coating or re-coat during this time. Vehicle can be driven after 12 hours. Allow at least 48 hours after last coat for full cure at room temperature and before washing.

After application:

- Allow 1 minute between coats
- 30 minutes for tack free dry
- 48 hours for full cure



CLEAN-UP

1. After use, clear spray nozzle by inverting can and spray until clear gas comes out.
2. If spray nozzle becomes clogged, clean and rinse with solvent (acetone, MEK, t-butyl acetate only). DO NOT insert pins into nozzle or stem.
3. Discard masks and empty can in trash. DO NOT burn, incinerate or place can in trash compactor

RE-APPLICATION

1. NS 1200 must be allowed to cure for a minimum of 1 week before attempting to recoat.
2. The coating is repellent in nature, all surface coated with NS 1200 must be lightly sanded to allow for a new layer to bond.
3. Follow previous application steps.

