

# DuraSlic<sup>®</sup> DS 1500 Ceramic Coating

## INTRODUCTION

**DuraSlic** DS 1500 is a revolutionary permanent ceramic nanocoating based on the world's most advanced ceramic technology. DS 1500 offers a high level of hydrophobicity, gloss, abrasion resistance and UV protection in a robust long lasting coating. It can be applied to painted, coated and base metal surfaces, glass and plastics, to impart an unprecedented level of protection from water, chemicals, UV and corrosion. Furthermore, DS 1500 is a multi-layerable formula that enables the user to boost the level of protection as needed. DS 1500 can be top coated with DuraSlic SpeedCoat to achieve still higher levels of hydrophobicity and protection.

## ATTRIBUTES

- Outstanding Hydrophobic and Oleophobic Properties
- "Easy-to-Clean" and Repels Most Materials
- Molecular Bond to Painted or Metallic Surfaces.
- High Film Hardness
- 5-year Scrub Test Performance
- Easiest-to-apply of all ceramic coatings
- Clear, Glossy finish
- Environmentally Friendly Formula

## TECHNOLOGY

**DS 1500** is a hand-applied ceramic coating based on revolutionary NanoSlic technology. The coating chemically bonds to the surface while forming a hydrophobic and oleophobic nanolayer to protect paint and enhance gloss. DuraSlic 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 detergent, rinse, dry and then wipe with DuraSlic **Panel Prep and Glass Wipe**. If the paint has been exposed to exterior conditions, further treatment may be necessary before these same steps. Metal surfaces will require the same cleaning steps.

## APPLICATION

\* See separate DS 1500 application instructions for more detailed information.

## CURING

**DuraSlic** 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 10H hardness in 3 days at room temperature. Rain-ready in 24 hours.

## TEST RESULTS

| Physical Properties                     | Values                  |
|-----------------------------------------|-------------------------|
| Appearance                              | Clear High Gloss        |
| Specific Gravity @ 23°C                 | 1.02 g/cm <sup>3</sup>  |
| Viscosity @ 23°C                        | 3-5 cP                  |
| Nonvolatile content                     | 10-12%                  |
| Static contact angle, water, ASTM D7490 | 105° <sup>1</sup>       |
| Static contact angle, n-hexadecane      | 63° <sup>1</sup>        |
| Dry Time                                | 20-30 minutes tack free |
| Film Thickness                          | 200 nm                  |
| Pencil Hardness (Mitsubishi)            | 10H                     |

<sup>1</sup> Measured in bulk

## ENVIRONMENTAL

**DuraSlic** 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. DuraSlic coatings are ECNA, REACH, RoHS and RoHS II compliant.



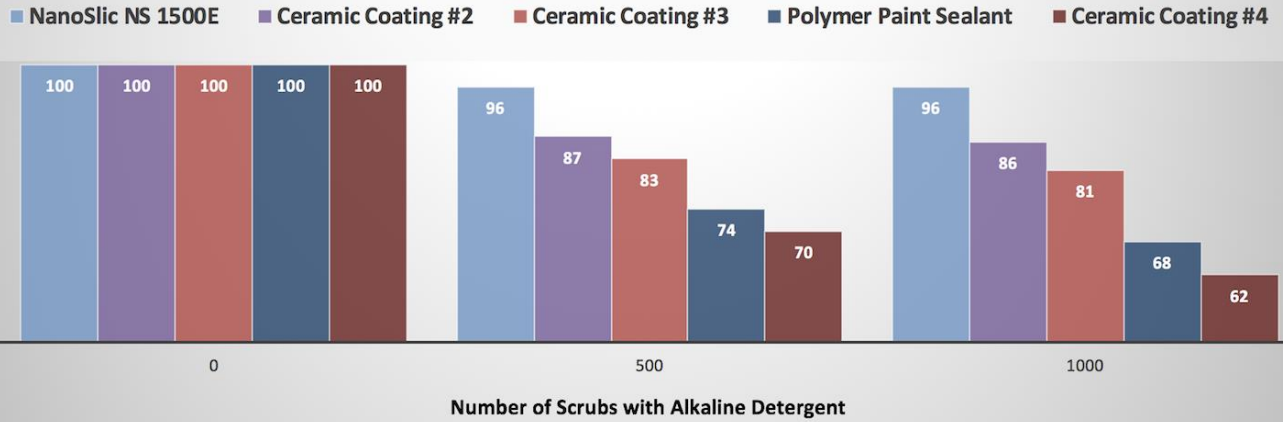
**ADDITIONAL TEST DATA**

| Property                        | Test/Specification                     | Result                                    |
|---------------------------------|----------------------------------------|-------------------------------------------|
| Contact Angle, water            | ASTM D7490                             | 105° <sup>1</sup>                         |
| Pencil Hardness                 | ASTM D3363                             | 10H<br>Mitsubishi 10H Pencil              |
| Roll-Off Angle                  | Glass Substrate                        | 20°                                       |
| Adhesion, Cross Hatch           | ASTM D3359                             | 5B (no loss)                              |
| UV Resistance                   | QUV, ASTM G154 16, 500 hours           | Pass                                      |
| Salt Fog Resistance             | ASTM B117-18, 500 hours                | Pass                                      |
| Refractive Index                |                                        | 1.4                                       |
| Water Vapor Permeability        |                                        | 0.02 g/100 sq. in./day                    |
| pH Resistance                   | pH 2-12, 4 hours @ 72°F/23°C           | No Change                                 |
| Solvent Resistance              | All Common Solvents 24 hours/72°F/23°C | No attack                                 |
| Flexibility                     | Mandrel Bend, ASTM D522-17, Method A   | Pass, (No loss, cracking)                 |
| Electrical Resistivity          | IPC-CC-830                             | 6.9 X10 <sup>6</sup> Megohms <sup>1</sup> |
| Dielectric Constant (Volts/Mil) | IPC-CC-830                             | 12,000 Volts/mil <sup>1</sup>             |
| Film Thickness                  |                                        | 200 nm/layer                              |

<sup>1</sup> Measured in bulk

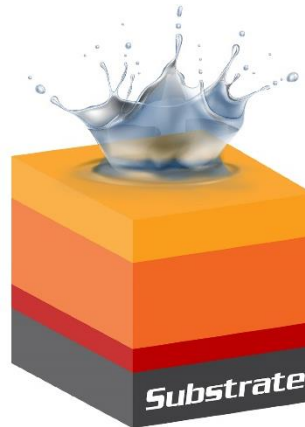


### Retention of Water Repellency (%) after Scrubbing with Alkaline Detergent per ASTM D2486



## TECHNOLOGY

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



- ← The top surface is another nanocoating that imparts hydrophobicity, oleophobicity, and chemical resistance
- ← Above the substrate surface is a ceramic layer that adds hardness, chemical resistance, electrical insulation, corrosion and scratch resistance
- ← At the substrate surface, DuraSlic has a nanocoating layer that chemically binds to the substrate

DuraSlic'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

DuraSlic'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. DuraSlic not only adds physical protection to surfaces but also contributes to a cleaner cosmetic appearance.

DuraSlic is largely composed of silica, structured with silica bonds. As such, DuraSlic materials are inherently capable of maintaining properties at temperatures well beyond non-ceramic polymers. DuraSlic coatings are resistant to most solvents and will be unaffected by a wide range in pH. Because 10H hardness is achieved in most DuraSlic formulations, significant scratch resistance is improved.

Low surface energy and ceramic structure make DuraSlic a unique nanocoating. DuraSlic is a revolutionary coating technology that offers many of the benefits of "advanced ceramics." DuraSlic can be applied to a wide variety of surfaces. The required thickness of the coating will depend on the application and the desired result. DuraSlic protects and enhances surfaces of metals, glass, polymers and coatings and many plastics. It is scratch resistant and creates a surface that is easy to clean.



## ***DS 1500 Application Instructions***

Warning: Use proper safety precautions including necessary PPE (Personal Protection Equipment.) The use of a mask and safety glasses is highly recommended. Proper ventilation is advised. DuraSlic coatings are considered flammable. Please see SDS for more information.

### **APPLICATION**

#### **Clean**

1. Wash as thoroughly as possible to remove all contaminants. Dry but do not use any additional chemicals to assist drying.
2. Do not coat in direct sunlight.
3. Preparation of the surface before application is the key to the perfect result. You want the surface as clean as possible.
4. Complete cleaning by using **Panel Prep and Glass Wipe** to remove any remaining contaminants.

#### **Apply Drops on Applicator**

Put on a pair of rubber gloves to avoid any coating contacting your skin. During use, the applicator will become sticky.

5. Pour several drops of DS 1500 onto a microfiber applicator. Immediately secure the cap back onto the bottle to avoid premature curing of the product inside of the bottle.

#### **Work Chemical into The Paint**

6. Wipe the applicator onto the paint (or bare metal) in approximately of a maximum 2 x 2-foot area or less, in up-down or left-right movements, using even pressure across the surface. Make sure the coating fully covers the area. You may need to wipe back and forth as in a crosshatch pattern to level the coating properly.
7. After 2-4 minutes, coating will have a rainbow effect in appearance.

#### **Buff After Rainbow Appears**

8. After the rainbow appears, use a clean soft microfiber towel to wipe away all residue.

#### **Warning - Do not allow coating to dry on any painted surfaces!**

For best results do not expose the paint to any moisture for 24 hours.





[www.duraslic.com](http://www.duraslic.com)

### **Layering**

Additional layers can be applied to achieve greater protection and performance. The second layer can be applied 4 hours after the first layer is completed. Follow directions beginning at #6. For additional layers repeat.

Discard the microfiber applicator. It is a single-use item that will harden as it dries when used with DS 1500. Also discard the towel used to wipe off the excess coating.

