

# Architectural Product Data Spec Sheet

## Invisible Shield® PRO 15 Nanoscale Glass Coating Preserves Glass Long-Term

INVISIBLE  
SHIELD®

PRO  
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### Product Description

Invisible Shield® PRO 15 Nanoscale Glass Coating is a professional-grade, high performance, poly-siloxane, hydrophobic coating that durably seals and protects interior and exterior glass against wear, corrosion and degradation from environmental exposure.

### Features/Benefits

- Repels Water, Soil, Rust, Acid Rain, Minerals and Pollutants
- Prevents Excess Soiling, Staining & Corrosion
- Prevents Scratches up to 92.9%\*
- Makes Cleaning Faster, Easier and More Efficient
- Improves Glass Appearance and Clarity
- Saves Work, Repairs & Replacements
- Eliminates the Need for Chemicals and Abrasives (Green Cleaning Alternative- Use Water Only)
- UV & Abrasion Resistant

### Surfaces

Applicable for all types of glass: Windows, facades, partitions, doors, skylights, atriums, glass block, shower glass, mirrors, windshields and photovoltaic panels.

### Function

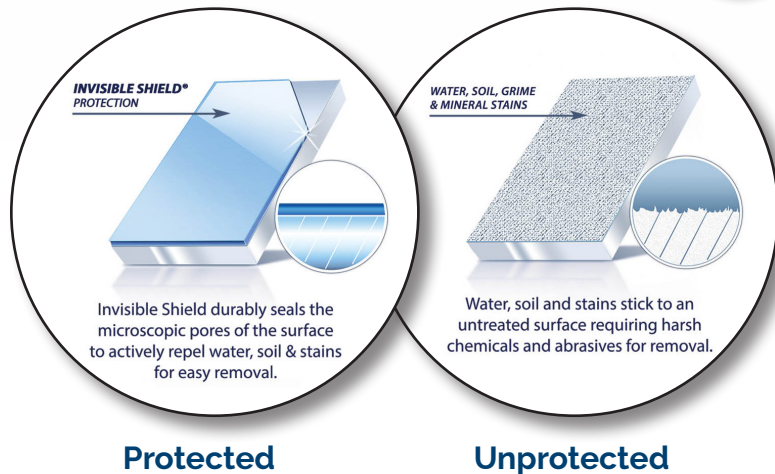
Protects and preserves against soiling, staining, pitting and scratches for easier & less costly maintenance, reduced repairs, enhanced appearance and longer life.

### CSI Ref- Architectural Specification

Division 088000 - BSD Glazing & 088723.10 - Protective Glass Coatings

### Part Numbers

USA #54215 Quart #54267 Gallon



Protected

Unprotected

### Coverage Rates

**Surface Coverage:** Average 4,000 ft<sup>2</sup>/Gallon

It requires no shaking, stirring and should not be diluted. It should be used in a manner which ensures complete coverage. Applied by conventional spraying, wiping and/or polishing techniques, it affords remarkable glass protection and coverage – in excess of 1,000 ft<sup>2</sup>/Quart or 4,000 ft<sup>2</sup>/Gallon. Coverage will vary slightly in accordance with the type and condition of the glass to be treated and the method of application.

### Technical Data

- **Active Ingredient:** Dimethyl Polysiloxanes + Proprietary Blended Additives
- **Solvent** specially denatured ethanol/isopropanol - proprietary formula (RTU)
- **Flash Point:** 19°C = 66°F (TAG Open Cup)
- **Odor:** Mild (Ethyl Alcohol)
- **Color:** Clear, Colorless liquid
- **Acid Number:** About 1
- **Viscosity:** Consistency of alcohol
- **Specific Gravity:** 0.802
- **Abrasives:** None
- **Storage Stability:** Minimum 5 years
- **Shelf Life:** Indefinite in Closed Containers
- **Weight per Gallon:** 7.7 lbs.
- **Dry Time:** Minutes depending upon temperature for solvent evaporation
- **Available:** 32 fl. oz., 1 gal., 5 gal., 54 gal., 250 gal.

### Technical Data:

NANOVEA - ASTM G99, D7027, D7187 Standards  
92.9% More Resistant to Scratch Penetration  
54.2% More Resistant to Wear/Stress from debris

### Contact Angle Test

- **Kruss DSA-20. ASU Biodesign Institute average** 108.3°
- **Biodetek Laboratory:** Kruss Easy Drop. 107.2°
- **Sealant Test:** Dowsil™ DOW HIGH PERFORMANCE BUILDING
- **Adhesion Test, ASTM C794:** Adhesion in peel of elastomeric joint sealants.
- **Approved leading Dowsil sealants:** 791 black, 983SGS black, 795 black

# INVISIBLE SHIELD®

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## Application

**Glass Assessment:** Glass must be thoroughly clean and dry prior to application of Invisible Shield® PRO 15.

## Directions For Use

**For semi-manual application:** (1) Thoroughly saturate a cotton or microfiber applicator with Invisible Shield® PRO 15 and apply onto the glass using a firm and overlapping motion, or spray the product directly onto the glass using an air or airless fine mist sprayer. Wipe/polish the product directly onto the glass using a firm and overlapping motion. (2) Allow the product to dry for several minutes until the solvent has completely evaporated. Re-apply the coating to ensure complete coverage and optimum protection. Allow to dry until a slight haze has formed. (3) Remove any excess haze by rinsing the glass with clean water and polish dry with a cotton or microfiber applicator or squeegee until crystal clear.

## Automatic Application

Invisible Shield® PRO 15 Vertical Two-Sided Glass Coating Machine and Microburst 2000 Horizontal Single-Sided Coating Machine – both include UV & IR Curing Technology.

## General Precaution

Flammable liquid. No smoking. Avoid contact with eyes. If splashed into eyes, flush with water for 15 minutes. If irritation develops, see physician.

## Environmental Conditions

DO NOT clean or treat glass in hot, direct sunlight or if the surface temperature is in excess of 90°F or 32°C. DO NOT apply the coating on wet, rainy days or when the humidity is above 90% as it will slow the evaporation process and inhibit bonding of the coating.

## Limited Warranty Procedures/Information

Unelko warrants Invisible Shield® PRO 15 for up to 15 years from the date of application on interior and exterior glass applications. When applied and maintained as directed, the product will protect against visible corrosion on the protected glass surface.

The product warranty does not extend to or cover misapplication or mis-use of the product, including the use of abrasive or harsh cleaners or applications tools, excessive soiling from lack of proper cleaning or neglect; wear and tear of the surfaces resulting from prior damage and exposure to extreme weathering and abrasion. See [glasscareexperts.com/our-guarantee](http://glasscareexperts.com/our-guarantee)



## Maintenance

REPEL® Window Wash and REPEL® Glass & Surface Care are compatible with the Invisible Shield® PRO 15 polysiloxane glass coatings. The REPEL® barrier coating is rejuvenated with each use to maintain peak performance. REPEL® Window Wash is well suited for large glass surfaces. Easily diluted with water at a 1:32 dilution. Simply add 1 part concentrate to 32 parts water with minimal shaking or agitation. As with any anti-corrosive product or solution, the glass should be cleaned periodically on a semiannual or quarterly basis commensurate with exposure.



Unelko is committed to offering the industry's finest glass cleaning, protection and aftercare products. Contact a Unelko representative for additional product information so we can tailor a glass protection program suited to your needs.

## Unelko Corporation

Scottsdale, AZ 85260

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Unelko Corporation

September 13, 2019

Corporate Offices: 14641 North 74th St., Scottsdale, AZ. 85260  
P: (480) 991-7272 Fax: (480) 483-7674  
Websites: [www.cleanxprofessional.com](http://www.cleanxprofessional.com) & [www.glasscareexperts.com](http://www.glasscareexperts.com)  
Warranty: [www.glasscareexperts.com/our-guarantee/](http://www.glasscareexperts.com/our-guarantee/)

#### Product Guide Specification

Specifier Note: This product guide specification is written according to the Construction Specifications Institute (CSI) current versions of MasterFormat, SectionFormat and PageFormat and as described in various Practice Guides.

Use this specification as the basis for developing a project specification.

Layout of Header/Footer is based on PageFormat, edit as necessary in compliance with project requirements.

Section must be carefully reviewed and edited by Architect/Design Professional to meet requirements of project and local building code.

Coordinate this section with Drawings and other specification sections; coordinate these numbers and titles with sections included for specific project.

Brackets [\_\_\_\_], and/or, <\_\_\_\_> and "or" are used to indicate when a selection is required.

Windows 2013 - Upon completion of section editing, you may turn-off "Specifier Notes" as follows; click on "File" then on "Options" then "Display" and remove check-mark for "Hidden text" in two locations.

### SECTION 08 8723.10 – PROTECTIVE GLASS COATINGS

Specifier Note: This section covers Unelko's INVISIBLE SHIELD PRO 15 NANO-SCALE GLASS COATING. Consult with Unelko Corporation for technical assistance in editing this section for specific project requirements.

#### PART 1- GENERAL

##### 1.01 SECTION INCLUDES

- A. Protective glass coatings.

Specifier Note: Edit the following list of related requirements for the project, and coordinate for consistent use of section numbers and titles. List any other sections with work directly related to work of this section. Some of these sections being listed as examples are Level 2 per MasterFormat Application Guide. Verify if project includes other Level 3 and 4 sections that are being used.

##### 1.02 RELATED REQUIREMENTS

- A. Section 04 23000 – Glass Unit Masonry: Glass block protection.
- B. Section 08 4100 – Entrances and Storefronts: Glass protection.
- C. Section 08 4300 – Storefronts: Glass protection.
- D. Section 08 4400 – Curtain Wall and Glazed Assemblies: Glass protection.
- E. Section 08 5000 – Windows: Glass protection.
- F. Section 08 6000 – Roof Windows and Skylights: Glass protection.

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G. Section 08 8300 – Mirrors: Glass protection.

H. Section 10 2819.16 – Shower Doors: Glass protection.

**Specifier Note:** Edit the following list of reference standards to only those being used for project.

### 1.03 REFERENCE STANDARDS

- A. ASTM International - American Society for Testing and Materials; [www.astm.org](http://www.astm.org):
  - 1. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018.
  - 2. ASTM D7027 - Standard Test Method for Evaluation of Scratch Resistance of Polymeric Coatings and Plastics Using an Instrumented Scratch Machine; 2013.
  - 3. ASTM D7187 - Standard Test Method for Measuring Mechanistic Aspects of Scratch/Mar Behavior of Paint Coatings by Nanoscratching; 2015.
  - 4. ASTM G99 - Standard Test Method for Wear Testing with a Pin-on-Disk Apparatus; 2017.

### 1.04 SUBMITTALS

- A. See Section 01 3000 – Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- C. Manufacturer's Instructions: Include information on special environmental conditions required for installation and installation techniques.

**Specifier Note:** Submit copy of warranty to provide Architect and/or Owner the opportunity to verify warranty coverage complies with necessary requirements. Refer to following website for Warranty Registration and other related information; <https://glasscareexperts.com/our-guarantee/>.

- D. Warranty Documentation: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

### 1.05 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Company specializing in manufacturing products specified in this section, with not less than forty years documented experience.

### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original, unopened, undamaged containers with identification labels intact.
- B. Storage and Handling: Contains fast evaporating flammable solvent so smoking or an open flame within close proximity or storing in temperatures above 113 degrees F (45 degrees C) is not permitted.
  - 1. Store in cool dry location and away from direct sunlight.
  - 2. Provide protective eyewear and gloves when directly handling or applying product.
  - 3. Avoid contact with eyes, and if splashed into eyes flush with water for 15 minutes, and if irritation develops contact physician.

**Specifier Note:** Refer to following website for Warranty Registration and other related information; <https://glasscareexperts.com/our-guarantee/>.

### 1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Manufacturer shall warrant product to protect glass for [fifteen years] or [\_\_\_\_ years] from date of application when applied and maintained as directed.

## PART 2- PRODUCTS

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## 2.01 MANUFACTURER

A. Unelko Corporation:

1. Address: 14641 North 74th St.
2. Phone: (480) 991-7272; Fax: (480) 483-7674.
3. Websites: [www.unelko.com](http://www.unelko.com), [www.cleanxprofessional.com](http://www.cleanxprofessional.com), and [www.glasscareexperts.com](http://www.glasscareexperts.com).

**Specifier Note:** Protective glass coating product listed is a nano-scale glass coating. A professional-grade, high performance, poly-siloxane coating that seals and protects interior and exterior glass against wear, corrosion and degradation from environmental exposure.

B. Product: Unelko Corporation; Invisible Shield PRO 15: [www.unelko.com](http://www.unelko.com)

## 2.02 DESCRIPTION

A. Protective glass coating has been tested and complies with following test methods:

1. Wear Testing: Complies with ASTM G99 for wear testing with pin-on-disk apparatus.
2. Scratch Resistance: Complies with ASTM D7027 for scratch resistance testing.
3. Nanoscratching: Complies with ASTM D7187 for scratch/mar behavior of coatings.

**Specifier Note:** Coordinate scope of glass assemblies on project having Protective Glass Coatings applied and indicate these sections in the following list as required for project. Coordinate this list with sections listed under RELATED REQUIREMENTS article in PART 1 of this section.

B. Refer to Drawings for extent of protective glass coating to be applied, and the following related sections for additional requirements regarding project components with protective glass coatings being applied.

1. Refer to Section 04 2300 for additional requirements on glass block.
2. Refer to Section 08 4100 for additional requirements on entrances.
3. Refer to Section 08 4300 for additional requirements on storefronts.
4. Refer to Section 08 4400 for additional requirements on curtain walls.
5. Refer to Section 08 500 for additional requirements on windows.
6. Refer to Section 08 6000 for additional requirements on roof windows and skylights.
7. Refer to Section 08 8300 for additional requirements on mirrors.
8. Refer to Section 10 2819.16 for additional requirements on shower doors.

C. Active Ingredient: Dimethyl polysiloxanes and a proprietary component blend that is Ready-To-Use (RTU).

D. Flash Point: 66 degrees F (16 degrees C) in accordance with Open Cup method.

E. Odor: Mild (Ethyl Alcohol).

F. Color: Clear, colorless liquid.

G. Specific Gravity: 0.802, as compared to water.

H. Weight per Gallon: 7.7 lbs (3.18 kgs).

I. Drying Time: A few or up to several minutes depending upon ambient temperature for solvent evaporation.

J. Container Capacity: [32 fluid ounces] [1 gallon] [5 gallons] [54 gallons] or [330 gallons].

K. Surface Coverage: 4,000 sq ft/gallon (98 sq m/liter).

## 2.03 ACCESSORIES

A. Glass Pre-Cleaner: Remove any visible stains or clean soiled areas prior to application of protective glass coating.

1. Use water moistened pad as a spot treatment to remove any tough "baked on" stains or mineral deposits that have bonded to glass surface.
2. Glass pre-cleaner for older glass or lightly soiled glass surfaces:

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- a. Product: Unelko Corporation; Invisible Shield Pre-Cleaner/Restorer: [www.unelko.com](http://www.unelko.com).
3. Glass pre-cleaner for heavier soiled and stained glass surfaces with water moistened pad:
  - a. Product: Unelko Corporation; Glass Scrub Water Spot & Stain Remover: [www.unelko.com](http://www.unelko.com).
- B. Maintenance Protective Glass Coating Cleaner: Use compatible surface cleaner to periodically clean protective glass coatings as part of ongoing maintenance of building.
  1. Product: Unelko Corporation; Repel Glass and Surface Cleaner: [www.unelko.com](http://www.unelko.com).
- C. Glazing Sealants: Provide silicone sealant for glazing that has been approved for use with protective glass coatings.
  1. Coating passed adhesion test in peel on following black elastomeric joint sealants in accordance with ASTM C794:
    - a. Product: Dow Chemical Company; Dowsil 791 Silicone Weatherproofing Sealant: [www.consumer.dow.com](http://www.consumer.dow.com).
    - b. Product: Dow Chemical Company; Dowsil 983 Structural Glazing Sealant: [www.consumer.dow.com](http://www.consumer.dow.com).
    - c. Product: Dow Chemical Company; Dowsil 7951 Silicone Building Sealant: [www.consumer.dow.com](http://www.consumer.dow.com).

## PART 3- EXECUTION

### 3.01 PREPARATION

- A. Glass surface must be thoroughly cleaned and dried prior to application to ensure proper bonding of coating.
- B. Identify any areas that have visible soil or stains that must be removed prior to application of coating.
  1. Older glass may be etched, pitted, stained due to contaminants such as pollution, acid rain, carbon emissions, minerals, alkali, sand, dust, or run off from cement or aluminum that has evaporated and dried on the surface.
  2. Type of extent of soiling will determine required pre-cleaning process.
    - a. New glass or light surface soil can be removed using normal glass cleaning and rinsing procedure.
    - b. Remove heavier soil and stains by using a stronger cleaner and glass stain remover.
  3. Do not clean glass in hot, direct sunlight or when surface temperatures exceed 90 degrees F (32 degrees C).
- C. Comply with cleaning instructions on back label of cleaner container or product data sheets.
- D. When cleaning or removing glass stains make sure that an adequate supply of clean water and microfiber towels are on hand to rinse and dry glass of any cleaner residue to ensure best cleaning results.

### 3.02 APPLICATION

- A. Install protective glass coatings in accordance with manufacturers written installation instructions.
- B. Do not apply coating in hot, direct sunlight or when surface temperatures exceed 90 degrees F (32 degrees C).
- C. Do not apply coating on wet, rainy days or when humidity levels are above 90 percent as this will slow evaporation process and inhibit bonding of coating during application.
- D. Protective glass coating is a Ready-To-Use (RTU) product, and requires no shaking, stirring or dilution.
  1. Two coats are recommended by manufacturer to ensure an even and complete coverage.
  2. Apply by conventional spraying, wiping and/or polishing techniques, it provides coverage in excess of 4,000 sq ft/gallon (100 sq m/liter); coverage may vary slightly due to type and condition of glass being treated and method of application.
  3. Apply coating coverage to workable section or single glass panel at a time for best application coverage.

**Specifier Note:** Based on the types of applications on the project select from Large Glass Areas and/or Smaller Glass Areas provided below.

- E. Application Directions for Large Glass Areas:

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1. Spray protective coating directly and evenly onto clean glass surface using an air or airless operated fine mist sprayer (metal container) with a spray tip having orifice size diameter ranging from 0.011 to 0.014 inches; ensure glass surface is visibly wet, but do not over apply to avoid drip.
2. Immediately after spraying a fine mist of protective coating on to glass, polish coating into surface using a cotton or microfiber applicator/tool; an adjustable long stem applicator is recommended.
3. Allow coating to dry on glass for several minutes or until solvent has completely evaporated, then re-apply coating to ensure complete coverage and optimum protection; allow coating to dry until a slight haze has formed.
4. Remove any excess haze by simply spraying or rinsing glass with clean water and then polish glass with a dry cotton or microfiber towel or squeegee until crystal clear.

**Specifier Note:** The following are testing options to verify the water repellency on protective coated glass surface. The first option "5, a", is a field test of glass surfaces degree of water repellency. Water droplets will be visible and hold together tightly rather than the typical water flowing on glass surface. The second option "5, b and 1)" are laboratory tests used to confirm the water drop/contact angle of the water repellency. Select one of the two options, and not both.

5. After application of protective coating, test an area of glass to confirm it is water repellent.
  - a. Apply plain, clean water to protective coated glass surface to observe repellency.
  - b. In laboratory environment, apply droplets of clean plain water to sample of protective coated glass as required to establish contact angle goniometer using Kruss DSA-20, or other approved testing device.
    - 1) Proper coating application will achieve a water drop/contact angle of 108 to 112 degrees or non-wetting.

**F. Application Directions for Smaller Glass Areas:**

1. Thoroughly saturate a cotton or microfiber applicator/tool with protective coating solution and wipe/polish directly on to glass surface using a firm and overlapping motion.
2. Allow coating to dry on glass for several minutes or until solvent has completely evaporated, then re-apply coating to ensure complete coverage and optimum protection; allow coating to dry until a slight haze has formed.
3. Remove any excess haze by simply spraying or rinsing glass with clean water and then polish glass with a dry cotton or microfiber towel or squeegee until crystal clear.

**Specifier Note:** The following are testing options to verify the water repellency on protective coated glass surface. The first option "4, a", is a field test of glass surfaces degree of water repellency. Water droplets will be visible and hold together tightly rather than the typical water flowing on glass surface. The second option "4, b and 1)" are laboratory tests used to confirm the water drop/contact angle of the water repellency. Select one of the two options, and not both.

4. After application of protective coating, test an area of glass to confirm it is water repellent.
  - a. Apply plain, clean water to protective coated glass surface to observe repellency.
  - b. In laboratory environment, apply droplets of clean plain water to sample of protective coated glass as required to establish contact angle goniometer using Kruss DSA-20, or other approved testing device.
    - 1) Proper coating application will achieve a water drop/contact angle of 108 to 112 degrees or non-wetting.

### 3.03 MAINTENANCE

- A. Clean glass on windows and building facades having protective glass coating applied on a routine, semi-annual or quarterly basis corresponding with level of soiling and exposure to weather, dirt, sand, pollution, or environmental contaminants.
- B. Clean glass having protective glass coatings applied in shower enclosures and other interior applications on a routine weekly or monthly basis using traditional ammonia-free glass cleaner corresponding with use and exposure to dirt, grime, soap, minerals, or hard water.
- C. Cleaning Guidelines: Comply with following guidelines for maintenance cleaning of glass surfaces having protective glass coating applied.

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1. Do not use abrasive cleaners of any type. Regular use of a squeegee can also be abrasive and is not recommended as it will accelerate wear on protective coating.
2. Do not use cleaners having acids, alkalis, or other strong chemicals on protective coated glass surfaces.
3. Do not use abrasive cleaning pads or brushes, scrappers, razor blades, or other sharp tools on protective coated glass surfaces.
4. Use a clean soft cloth, pad, or paper towel to clean glass.

**END OF SECTION**