

TECHNICAL DATA SHEET

# BROCHURE

At Onyx Coating we strive to continually evolve and innovate to create coatings that outperform our competition and your expectations.

**AF/AF+COAT**

2021



**ONYX**  
COATING  
*Every Day Like Brand New*

# AF/AF+COAT



## THE SOLAR POWER PLANTS CHALLENGE

The amount of power generated by solar power plants decreases over time due to pollutants and contamination covering the panels' surface (a soiling process). Consequently, maintenance is needed regularly after installation. Data published by the European Photovoltaic solar energy conference shows that solar panels experience an average annual decline of 9.5% power generation due to contamination. With peaks of up to 50% decrease reached in regions with severe soilings such as the Middle East, India, and Southwest America.

### SOILING LOSSES

The loss in power resulting from snow, dirt, dust, and other particles covering the PV module's surface is referred to as 'soiling losses'. This phenomenon can be caused by a superficial thin layer covering the solar array's surface like dust.

### SOILING CAUSES

Two factors are critical in the solar panel soiling process, the panel's position, and the surface conditions. The solar panel soiling process is affected by the panel's position, which depends on the sunlight direction and wind. Dust is collected in larger quantity when the panel is in a horizontal position. Additionally, if the surface is not smooth but rough, or sticky, the soiling process intensifies.



After Cleaning

Before Cleaning  
(Soiling)

**"** At the heart of everything we do at Onyx Coating is the desire to think differently and challenge convention. This desire has led us to research, develop and manufacture ceramic coating in over four different continents across the world. **"**



HOW

## IT WORKS

AF/AF+ coats are designed from scratch to be explicitly used on solar panels. When used on solar panels, the product will form a durable protective layer to the surface, turning the surface into a low-maintenance exterior. It will also transform the surface into a water-repellent, self-cleaning, firmer and smoother texture. This transformation decreases the soiling and improves the power generation efficiency of the solar panels.

### APPLICATION METHOD

1. Prepare and clean the surfaces as much as possible before proceeding to the coating stage.
2. Wet the pad with the product and apply it to the surface in a meticulous manner.
3. Keep rubbing the product on to the surface until the surface turns hazy.
4. Let the coating sink for 5-10 minutes and buff with a microfibre towel.

### Tips

*If the coatings do not come off easily, use a wet towel or spray some water. Use a sufficient amount of product when coating.*

### ONYX COATING

Onyx Coating has been endlessly researching and developing next-generation coatings. The small-sized molecule allows the coating layer to bond even stronger and deeper than most of the water repellent products in the market, hydrogen-bridge bonds. Our next-generation bonding transforms the surface to become easier cleaning surfaces and is much more resistant to weathering.

# AF/AF+COAT

Because AF/AF+ coats were designed from scratch to be explicitly used on solar panels, it has terrific contact angles and sliding angles on the glass, determining how well the glass is protected from all kinds of pollutants/contaminants.

## CONTACT ANGLE

How high a bead of water stands on a surface. More specifically, it measures the angle created between the edge of a drop of liquid and the substrate's surface. The more repellent a surface is to that liquid, the higher the contact angle.

## SLIDING ANGLE

This process measures a surface's smoothness by placing a drop of water at the end of the glass, then toting the glass until the drop begins sliding. This is also known as the coefficient-of-friction (COF) and Rolloff-angle. The lower the sliding angle, the smoother the surface.

## WIDE RANGE OF APPLICATION

*AF/AF+ coats can be used on a wide range of solar panels. The product can be applied to any glass finishes including, tempered, acid-etched, sandblasted, patterned/ textures, bent, tinted, and frosted glass.*



## PRODUCT

# SUMMARY

AF/AF+ coats are quick and easy to use, and at the same time guarantees the best performance and durability. It is cost-efficient because it turns the surface to self/easy cleaning surface. Also, as a low-maintenance product, it is a solution that will turn your glass surface eco-friendly. Just below is a chart summary of the product.

AVAILABLE SIZES: 1 Litre / 5 Litre / 25 Litre

| PRODUCT FEATURE                  | AF COAT                 | AF+ COAT                |
|----------------------------------|-------------------------|-------------------------|
| Water repellency (contact angle) | 119.9 degrees           | 120.6 degrees           |
| Stain resistance                 | Superior                | Superior                |
| Impact resistance                | Up to 10 times increase | Up to 10 times increase |
| Scratch resistance               | Superior                | Superior                |
| Oleophobicity (oil repellence)   | Superior                | Superior                |
| Electrical resistance            | 1000 times increase     | 1000 times increase     |
| Increased brilliance             | 25% increase            | 25% increase            |
| Leaching resistance              | Superior                | Superior                |
| Durability                       | 5-7 years               | 5-7 years               |
| Optical clarity                  | Excellent               | Excellent               |
| Chemical resistance              | Superior                | Superior                |
| UV stability                     | Excellent               | Excellent               |
| Patent                           | Patented                | Patented                |
| Reduced number of cleaning       | Up to 80%               | Up to 90%               |
| Mold/bacteria                    | Reduced                 | Reduced                 |
| Sliding angle                    | 10 degrees              | 9.5 degrees             |
| Surface hardness                 | 9H pencil hardness      | 10H pencil hardness     |

## NANO CERAMIC COATING

*Our forward-thinking philosophy means we're always evolving our approach, to create coatings that exceed your expectations. Every product has been formulated to deliver the highest quality and bring you a world of new possibilities.*

Beyond excellence,  
we strive to create  
a better future

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