



nanoDefense™

Self-Cleaning Surface Protection for Common Touchpoints

***nano*Defense™ is the safe, effective solution to show you care.**



*It is a remarkable,
natural, self cleaning surface
technology that activates
in the presence of light!*

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What is a Self-Cleaning surface?

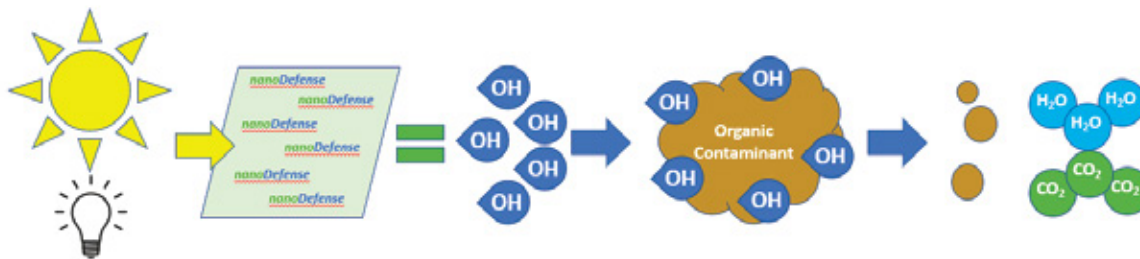
In it's simplest form, a self-cleaning surface is one that has a mechanism to repel and/or destroy contaminants. In nature, Butterfly wings, Lotus leaves, and a Gecko's feet all are remarkable in their ability to repel contaminants. **nanoDefense™** is a super hydrophilic surface that repels contaminants allowing it to easily be wiped clean with water, but more importantly, its patented ingredients are actively involved in destroying organic compounds on a molecular level.

The nanoScience of Clean = the power of Nature

The incredible power of **nanoDefense™** is a natural process called photocatalysis. Earth's atmosphere relies on a remarkable, natural process to destroy toxins and cleanse the air we breathe. The photocatalytic properties of **nanoDefense™** create hydroxyl radicals and superoxide anion radicals that are members of nature's cleaning crew.

The **nanoDefense™** product uses the naturally occurring mineral of Titanium Dioxide (TiO_2) in nanoparticle form to create an active surface that is photocatalytic. When exposed to light, a natural reaction occurs that breaks down contaminants at a molecular level. This process actually pierces the cell walls of contaminants and decomposes them into harmless byproducts. While it sounds miraculous, it is all natural, safe, and effective. Used in hospitals and the medical industry, it is a well-studied phenomenon that is a non-toxic, safe solution for helping to keep surfaces clean. First discovered over 35 years ago, the oxidizing power created by titanium dioxide initiated photocatalysis is actually more than twice as powerful as bleach! This active process happens continuously in the presence of light which means that surfaces covered by **nanoDefense™** are working to protect your customers and employees.

There is a wealth of independent research over the past 20 years that support the amazing characteristics of Titanium Dioxide nanoparticles and the power of photocatalysis. **nanoDefense™** uses proven science to bring a new, safe, and effective solution for touch points that will show your customers and employees that you care about them!



Light triggers the nanoDefense™ Self Cleaning Process which produces Hydroxyl radicals that attack and decompose organic contaminants into water, carbon dioxide, and harmless byproducts

How is nanoDefense better?

The technology of TiO_2 induced photocatalysis is proven effective. **nanoDefense™** uses a proprietary, patented formulation that is in fact superior to comparable coatings. First and most importantly, the molecular construction is engineered to reflect light at peak efficiency. This means increased photocatalytic activity, even in indoor lighting. Second, the formulated coating is super hydrophilic allowing liquids to evenly disperse so that 100% of the surface is protected. It also has additives that increase its abrasion resistance, resulting in longer lasting effectiveness!

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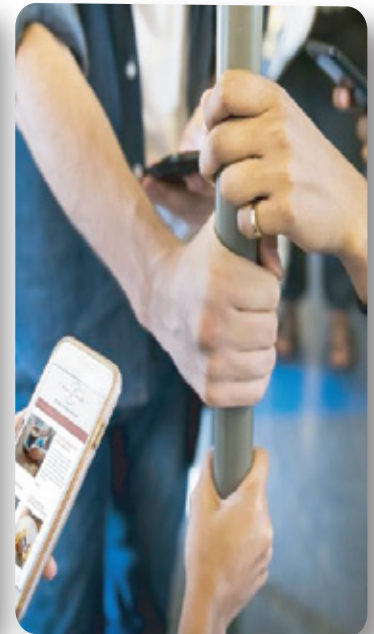
Professional Grade

These products are intended for low to medium traffic environments such as offices, banks, and similar professional environments. This product is easily recognizable by its green color and could be used on the following:



INDUSTRIAL Grade

These products are intended for high traffic environments such as Airports & Mass Transit, Restaurants, Stores and other high traffic public spaces. This product is silver and could and is well suited for the following:



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Use nanoDefense on these Common Touch Points:

Facility Rest Rooms



Buttons



Touch Screens



Self Service Items



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Use nanoDefense on these Common Touch Points:

Utility



Mobility



Mass Transit



Vending/Kiosk



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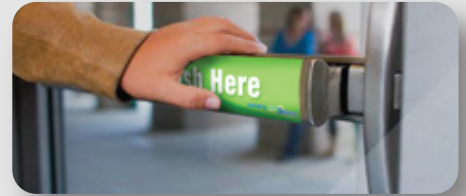
Contact us for custom sizes or colors - minimum order quantities apply

Professional Grade Indoor Products

Push Bars - Large & Small

Professional Grade Indoor - Woven Fabric Size: 17.25" x 3.60"
Part Number: 90.00031 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 25)

Professional Grade Indoor - Woven Fabric Size: 11.88" x 3.43"
Part Number: 90.00032 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 25)



Push Pads - Horizontal & Vertical

Professional Grade Indoor - Woven Fabric Size: 8.63" x 3.75"
Part Number: 90.00027
(Sold in Packs of 25)

Professional Grade Indoor - Woven Fabric Size: 5.88" x 8.63"
Part Number: 90.00026
(Sold in Packs of 25)

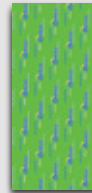
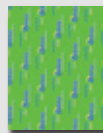


Handle Wraps - Small, Medium, Large

Professional Grade Indoor - Woven Fabric Size: 2.88" x 4.00"
Part Number: 90.00029
(Sold in Packs of 25)

Professional Grade Indoor - Woven Fabric Size: 4.00" x 5.88"
Part Number: 90.00030
(Sold in Packs of 25)

Professional Grade Indoor - Woven Fabric Size: 3.75" x 8.63"
Part Number: 90.00028 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 25)



INDUSTRIAL Grade Indoor Products

Push Bars - Large & Small

Industrial Grade Indoor - Woven Fabric Size: 17.25" x 3.60"
Part Number: 90.00018
(Sold in Packs of 25)

Industrial Grade Indoor - Woven Fabric Size: 11.88" x 3.43"
Part Number: 90.00017 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 25)



Push Pads - Horizontal & Vertical

Industrial Grade Indoor - Woven Fabric Size: 8.63" x 3.75"
Part Number: 90.00013
(Sold in Packs of 25)

Industrial Grade Indoor - Woven Fabric Size: 5.88" x 8.63"
Part Number: 90.00012
(Sold in Packs of 25)

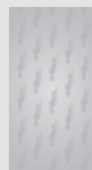
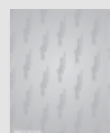


Handle Wraps - Small, Medium, Large

Industrial Grade Indoor - Woven Fabric Size: 2.88" x 4.00"
Part Number: 90.00015
(Sold in Packs of 25)

Industrial Grade Indoor - Woven Fabric Size: 4.00" x 5.88"
Part Number: 90.00016
(Sold in Packs of 25)

Industrial Grade Indoor - Woven Fabric Size: 3.75" x 8.63"
Part Number: 90.00014 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 25)



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Master Sheets

Larger sheets allowing printers, fabricators and end users to make their own custom parts for specific markets or customer applications. Several products are available in both professional and industrial versions. Contact us for custom sizes or applications.

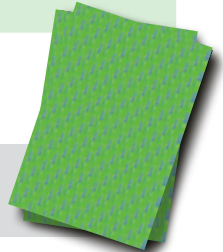
Ready To Use Films

Fabricate or cut into custom shapes or sizes to meet the specific application. Films can be die cut, plot cut or even cut with scissors.

Industrial Grade Indoor - Magical Size: 12.00" x 18.00"
Part Number: 90.00010 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 100)



Professional Grade Indoor - Woven Fabric Size: 11.88" x 17.25"
Part Number: 90.00025 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 100)



Sheets for Touch Screens

Industrial Grade Indoor - Removable Clear Vinyl Size: 12.00" x 18.00"
Part Number: 90.00022 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 100)



Sheets for Handles/Wraps

Industrial Grade Indoor - Woven Fabric Size: 11.88" x 17.25"
Part Number: 90.00011 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 100)



Printable Films

Second surface printable clear films that allow for custom branding or messaging. Print Ready for HP Indigo, UV Digital Inkjet systems or screen printing.

Professional Grade

Clear Printable Sheets for Outdoor Applications
.007" Lexan™ 8B35 Polycarbonate Size: 12.00" x 18.00"
Part Number: 90.00024 **IN STOCK (2-5 DAY LEAD-TIME)**
(Sold in Packs of 100) (Custom Thicknesses and Textures Available)



INDUSTRIAL Grade

Clear Printable Sheets for Outdoor Applications
.007" Lexan™ 8B35 Polycarbonate Size: 12.00" x 18.00"
Part Number: 90.00009
(Sold in Packs of 100) (Custom Thicknesses and Textures Available)



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Overview:

nanoDefense™ is a film device with a hydrophilic photocatalytic coating that breaks down contaminants and pollutants when exposed to light. **nanoDefense™** combines photocatalytic TiO₂ and advances in nanotechnology to create the most advanced light-activated self cleaning surface product on the market. Available



nanoDefense™

Surface Protection

SELF CLEANING SURFACE THAT IS IDEAL FOR PREVENTING THE GROWTH AND SPREAD OF CONTAMINANTS ON COMMON TOUCH POINTS.

IDEAL FOR USE IN AREAS WHERE HYGIENE IS OF HIGH IMPORTANCE, SUCH AS HOSPITAL AND HEALTHCARE ENVIRONMENTS, SCHOOLS, NURSERIES, RETAIL ENVIRONMENTS, COMMUNAL BUILDINGS, RESTAURANTS, CAFETERIAS AND VENDING APPLICATIONS

Uses:

- Schools
- Hospitals
- Hotels
- Airports
- Restaurants
- Public Infrastructure
- Public Transportation
- Offices
- Shopping Centers
- Casinos
- Entertainment Centers

Features:

- A hydrophilic, self cleaning surface that produces Hydroxyl Radicals with 2 times the oxidizing power of bleach.
- Reduces the use of toxic or harsh cleaning chemicals.
- Reduce cleaning cycles while maintaining surface cleanliness
- Easy to apply films protect high touch surfaces.

nanoDefense Characteristics:

Outdoor Durability/UV Protection	High
Chemical Resistance	Excellent resistance to many household cleaners
Photocatalytic properties	5 Years
Recommended Shelf Life	2 years for adhesive backed 5 years for non-adhesive backed
Recommended Replacement	Quarterly with moderate traffic

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Independent Lab Test Results

Photocatalytic Activity

Description	Contaminants	Class	Test Results	Method
nanoDefense™	—	—	Pass	ISO22197-1-2007
	—	—	Pass	ISO22197-2-2011
	—	—	Pass	ISO22197-3-2011

Air Purification

Description	Contaminants	Class	Test Results	Method
nanoDefense™	Toluene	Air	Pass	JIS-R 1701-3
	Acetaldehyde	Air	Pass	JIS-R 1701-2
	Formaldehyde	Air	Pass	JIS-R 1701-4
	SO2	Air	Pass	UTISH
	NO2	Air	Pass	ERCA

Bacteria & Virus

Description	Contaminants	Class	Test Results	% Reduction	Method
nanoDefense™ DETAILED LAB RESULTS AVAILABLE BY REQUEST.	Staphylococcus Aureus (MRSA)	Bacteria	Pass	99.97	AATCC-100
	Klebsiella Pneumonia	Bacteria	Pass	99.96	AATCC-100
	Streptococcus agalactiae	Bacteria	Pass	99.96	PCR
	Salmonella	Bacteria	Pass	99.96	PCR
	MRSA	Bacteria	Pass	99.96	PCR
	Coliform Bacteria(Ecol)	Bacteria	Pass	99.96	PCR
	Covid 19	Virus	Pass	99.96	PCR
	SARS-Cov	Virus	Pass	99.96	PCR
	MERS-Cov	Virus	Pass	99.96	PCR
	Influenza A/B	Virus	Pass	99.96	PCR
	H1N1	Virus	Pass	99.96	PCR

Artificial Weathering

Description	Test	Test Results	Method
nanoDefense™	UV Exposure	Pass	ASTMG154
	Resistance to Humidity	Pass	ASTMD4585
	Chemical Resistance	Pass	ASTMD1308

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These test results are not transferable and may not be relevant or applicable to real life applications. Therefore, we strongly recommend other regulatory entities may require additional testing to determine the suitability for any specific end application. Though there are a number of peer reviewed papers on Titanium Dioxide's ability to kill bacteria and viruses, nanoDefense™ is not registered with the EPA as a pesticide and therefore can make no claims that it is antimicrobial to the general public.

What is the product intended to do?

nanoDefense is a recognizable, replaceable film substrate that has a proprietary coating which activates in the presence of light to create a self cleaning surface. It is intended for use on high touch surfaces in lighted areas where the coating works to continuously to remove contaminants.

How does the nanoDefense Surface work?

One of the components of the coating is a mineral called titanium dioxide. Titanium dioxide acts as a catalyst, when activated by light. This photocatalytic effect produces Hydroxyl radicals that have 2 times the oxidizing power of bleach. This oxidation breaks down organic contaminants at the cellular level into harmless by-products.

What do you mean by "self-cleaning"?

The nanoDefense surface continuously oxidizes organic contaminants at the cellular level. It is important to remember that light must be able to reach the surface for the process to work. Wiping away anything that would prevent light from reaching the film will allow nanoDefense to continuously self clean.

How should I clean nanoDefense surfaces?

nanoDefense surfaces are not affected by traditional non-abrasive cleaners or detergents. We recommend wiping the surface with a non-abrasive cloth and water to remove large-scale contaminants. Do not use harsh cleaners, detergents, or abrasive cleaning utensils that will compromise the coated surface.

How do I choose between INDUSTRIAL Grade or Professional Grade products?

All facilities have areas within them that get touched or used more frequently than others. INDUSTRIAL Grade nanoDefense products are designed to be used in high traffic areas where the surfaces would be touched regularly. The INDUSTRIAL Grade products have longer lasting coatings and are more abrasion resistant. The INDUSTRIAL Grade products will last longer between replacements than the Professional Grade which are intended for low to medium traffic areas.

How long do nanoDefense products last?

We recommend replacing nanoDefense products quarterly at a minimum. The nanoDefense surface does not expire, so the product has a very long lasting shelf life. The product service life is solely dependent on actual physical wear and tear that gradually removes and reduces the effectiveness of the coating.

How do I know when to replace nanoDefense surfaces?

We recommend users replace nanoDefense products quarterly at a minimum. The print on nanoDefense products can serve as a wear indicator. If the text or graphics become worn or faded, it's time to replace, as the coated surface is also becoming worn down. Also, if the nanoDefense film starts to peel off, we recommend replacement to keep the touch point free from contaminants.

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