

UNIPRO

SECTION H

NICHE PRODUCTS

1 - ODOR REMOVAL

2 - PHOTOCATALYTIC AIR PURIFICATION SYSTEM ADVANCED CLEAR HYDROPHO3

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ODOR REMOVAL



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WHAT IS AVEHO - ODOR REMOVAL TECHNOLOGY?

Aveho Odor Removal Technology is an engineered material consisting of micro-sized particles that capture and physically bind odor-causing compounds, or catalytically convert the odor molecules into non-odorous molecules. Impressive huh? For those of you technically-challenged folks out there, here's a translation: Aveho is really cool, really tiny stuff that makes stink go away forever!

HOW DOES IT WORK?

Aveho® Odor Removal Technology mimics processes found in nature, where there are strong bonds between metal atoms and amino acids. These amino acids can break down to form numerous odors. Aveho interacts with these odors through its natural tendency to bind with nitrogen, oxygen and sulfur (the smelliest stuff in the world). This interaction removes the odors from the air. If you have a nose, Aveho technology can meet your odor removal needs. It can be used in a wide variety of applications.

Key Advantages

- Capable of removing target odors, without affecting most desired scents
- More capacity than activated carbon in most applications
- Scientifically eliminates odors in air and liquids
- Removes odors without adding any fragrance
- Does not release odors due to moisture or heat

POTENTIAL PRODUCT APPLICATIONS

Aveho® Odor Removal Technology is very versatile and can be used to treat any number of areas. Some possible examples include:

- The refrigerator - Aveho odor removal was demonstrated in laboratory testing to outperform sodium bicarbonate (baking soda) for removing odors generated in the refrigerator (but you really should throw that pizza away – it's not getting any younger).
- The trash can - Spray Aveho odor removal under the lid, along the sidewalls, or onto the trash itself.
- Feet – Sneakers, locker rooms, gyms, yoga studios, bowling alleys, skating rinks, martial arts dojos, and the list goes on. All of them are huge targets for stinky feet! Aveho odor removal was evaluated on a key chemical compound responsible for foot odor. Please contact us for further study details.
- Pets – If you're a crazy cat lady then you probably don't notice. But for the rest of us, Aveho odor removal is the perfect solution for malodors from cat litter boxes, bedding, wet dogs, and areas they aren't supposed to use as a toilet, but do anyway. Please contact us for further details.
- Smoke – Odors from the smoke of cigarettes, cigars, house fires, camp fires and other sources can be quickly and permanently removed by Aveho. So go ahead and light one up right next to those fancy-schmancy curtains in that fancy-schmancy room that never gets used. No one will ever know.
- Body – Whether it's your turn to car pool the soccer team to and from practice this week, your locker room has reached dangerously funktastic levels or you've got teenagers (we won't delve into what that entails), Aveho will "clear the air" and eliminate body odors from fabrics, spaces and containers.



ODOR REMOVAL



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HOW DOES AVEHO® COMPARE TO ANTIMICROBIALS?

Antimicrobial chemicals, aka antimicrobials, are designed to kill microbes. It has been shown that not all microbes are bad. In fact, many microbes are good, and help us stay safe and healthy (some hang out in your ears and whisper things like “drink more water” and “do some deep knee bends”). When antimicrobials are used, they destroy the organisms that produce bad odors, and thus, if the microbes are dead, they can’t keep stinking things up (although you would think that rotting microbe carcasses would produce a stink of their own). However, these chemicals may also kill the microbes we want to keep around. Microbes create unpleasant odors when they excrete what they have eaten. (Except they don’t use toilets – savages). Aveho targets the resulting unpleasant odors, but does not target the microbes themselves. Many odors (smoke, some rotting food, pet odors, some body odors, etc.) are not derived from microbes. So antimicrobials have no effect on these type of odors. Aveho eliminates bad odors whether or not they were caused by microbes.

HOW DOES AVEHO® COMPARE TO FRAGRANCE-BASED ODOR FIGHTING PRODUCTS?

Many products that are considered odor eliminators, like air fresheners, do not eliminate bad odors at all. Instead, they mask or attempt to mask the bad odors with “pleasant” fragrances. Because everyone has a unique sense of smell, not everyone can agree on which fragrances are pleasant (except maybe bacon), and which are less pleasant or simply not desirable at all. And because we all smell things differently, the same masking fragrance may or may not cover up the bad smells we sense with our own nose.

HOW DOES AVEHO® COMPARE TO BAKING SODA AND ACTIVATED CARBON?

Baking soda and activated carbon both absorb a large variety of smells. Which is great assuming those are all bad/unwanted smells? In fact, activated carbon absorbs both bad and good odors. Because these odor absorbers attract so many different odors, it is easy for their capacity to be used up quickly. This means a significant quantity of baking soda or activated carbon would be required to eliminate a specific, very stinky odor and would have to be changed out often. Aveho is selective odor elimination technology. Different classes of bad odors, whether based in sulfur, nitrogen or oxygen, are specifically targeted by different types of Aveho. This means Aveho won’t get used up as quickly as baking soda or carbon, and has the potential to continue to eliminate bad odors as they are generated. Aveho also won’t absorb most positive fragrances, if you choose to introduce them. So if it’s “Pure Vanilla Joy” that you want, “Pure Vanilla Joy” is what you will get.



ODOR REMOVAL



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HOW DOES AVEHO® COMPARE TO ANTIMICROBIALS?

Aveho odor control technology is an engineered material consisting of micro-sized particles that capture and physically bind odor-causing compounds or catalytically convert the odor molecules into non-odorous molecules. Aveho™ odor control technology mimics processes found in nature, where there are strong bonds between metal atoms and amino acids. These amino acids can break down to form numerous odors. Aveho interacts with these odors through its natural tendency to bind with nitrogen, oxygen and sulfur. This interaction removes the odors from the air.

Whether at home, on the go, at work or any place where odors are found, Aveho™ can be used to control them.

DIRECTIONS

Direct Treatment: Apply directly to odor source	Indirect Treatment: Apply to a permeable article placed near the odor source	Diluted Treatment: Add to liquid where a large surface area is being cleaned
<ol style="list-style-type: none"> Shake well. Spray enough to lightly cover an offensive surface with Aveho™ Odor Removal Technology or a surface that is near a malodor. Over-spraying on dark surfaces may create a light, whitish color. Allow the product to air dry. Dry time varies depending on air circulation. 	<ol style="list-style-type: none"> Shake well. Generously spray a permeable article (i.e. fabric, paper towel) with Aveho. Once dry, place the treated article in, on or near the odor source. 	<ol style="list-style-type: none"> Shake well. Start with 1 part Aveho to 15 parts water or liquid. Adjust the ratio up or down based on real world experience and testing. Apply the liquid treated with Aveho, onto any surface. This will leave a layer of odor removing particles once dry.

- If after 48-24 hours the odor is still present, verify the odor source and repeat application process.
- Keep the product away from children and pets and do not allow pets onto the treated area.
- Always test surfaces to be treated for color fastness by applying to a hidden area first.

INDUSTRIAL USE ONLY

Aveho™ Odor Removal Technology is not hazardous in accordance with US OSHA 29CFR1910.1200 (Hazcon 2012), Canada

Hazardous Products Regulations (WHMIS 2015), Regulation (EC) No. 1272/2008 and the Globally Harmonized System (GHS). EUH210: Safety data sheet available on request.

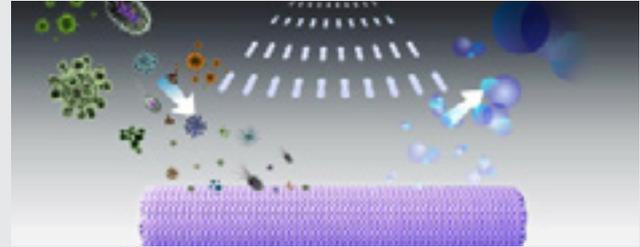
ODOR COMPOUNDS	ODOR SOURCES									
	Fish	Garlic/ Onion	Garbage	Tobacco	Dog	Fresh Urine	Aged Urine	Feces	Menses	Feet
Sulfur Compounds	xx	xxx	xxx		xx	xxx	xx	xxx	x	x
Acids			xxx	xx						xxx
Ketones Aldehydes	xx			xx		x	x		xx	
Amines	x				xxx	x	x		xx	
Ammonia				x	x		xxx			

x= small component xx= moderate component xxx= large component

PHOTOCATALYTIC AIR PURIFICATION SYSTEM

airocide

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TECHNOLOGY

Airocide® Photocatalytic Air Purification System; developed to oxidize all airborne organic matter, even those too small to be filtered. Airocide's unique technology employs a reaction chamber packed with tiny silicone tubes encrusted with a highly reactive titanium dioxide catalyst. When energized by the system's 253.7 nanometer UVG lamps, water molecules are split and surface-bound hydroxyl radicals are formed. Any organic matter, no matter how small, that contacts these HO- radicals is instantly destroyed. Airocide is listed by the FDA as a Class II medical device and has been shown by independent Air Quality Labs to be free of any ozone emission. The process results in only trace amounts of pure water vapor and CO². Airocide oxidizes mold spores, mycotoxins, bacteria, viruses, VOCs (gasses) and Ozone on contact. Proven on the International Space Station and Space Shuttle flights, Airocide is simply the one that NASA developed. Airocide works.

AIROCIDÉ® SYSTEMS - PRODUCT SPECIFICATIONS

	GCS-25	GCS-50	GCS-100
Dimensions (length x width x depth)	21" x 23" x 5" in.	29" x 23" x 5" in	42" x 24" x 5" in.
Max Room Size Recommendations	4000sqft	5000sqft	6650sqft
Cleaning Capacity	34 m3/h	57 m3/h	43 m3/h
Cleaning Type	Automatic	Automatic	Automatic
Min Particle Removal Size	> 0.001 µm	> 0.001 µm	> 0.003 µm
Cleaning Efficiency	99.99%	99.99%	99.97%
Gases Removal	Yes	Yes	Yes
Max Noise level	42 dBa	46 dBa	50 dBa
Cover	Thermoform	Thermoform	Thermoform
Standard Color	White	White	White
Weight	19.03 lbs	37.04 lbs	64.15 lbs
Power	100-240Volt SO/60Hz	100-240 Volt SO/60Hz	100-240 Volt SO/60Hz
Amps	Maximum Current 1.0 Amp	Maximum Current 2.5 Amp	Maximum Current 5.0 Amp
Placement	Wall or Ceiling Mount	Wall or Ceiling Mount	Wall or Ceiling Mount
Power Cord	7'-9'	7'-9'	7'-9'

ADVANCED CLEAR HYDROPHOBIC COATING

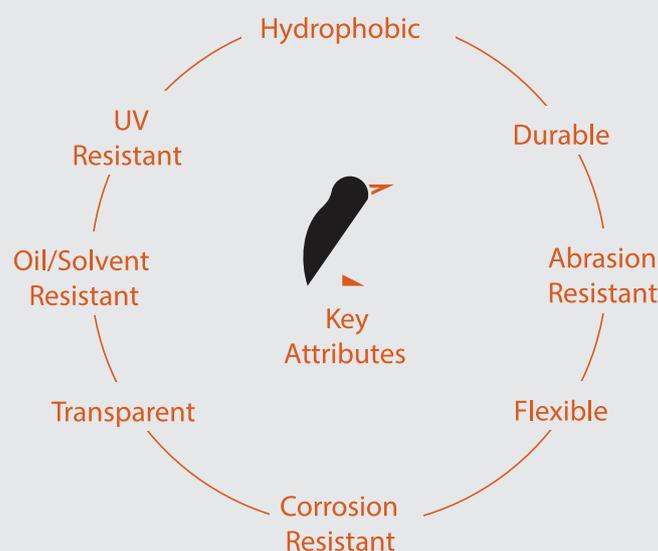


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Gentoo is the next generation of corrosion-resistant and easy-cleaning coatings. With its combination of high performing abrasion resistance and very low sliding angle, Gentoo excels where other coatings have fallen short.

Traditional hydrophobic coatings are clear and abrasion resistant, but do not shed fluid easily. Superhydrophobic coatings are generally great at shedding water, but are not clear, and are easily removed. Whether it's abrasion resistance, oil repellency or visual clarity, conventional coatings have their limitations. Gentoo changes that.

Gentoo is a clear coating that not only repels water but most oils and solvents. It is also able to withstand significant abrasion without sacrificing performance.



HOW DOES IT WORK?

Gentoo is a dense polymer system that forms a barrier against corrosion initiators. This is due to its low surface energy, high density, and low porosity. The system is conformal, pinhole free, and very thin (4-6 microns) compared with traditional polymer coatings but far more dense and durable. The higher density of the system provides an excellent barrier to water and corrosive ions.

ADHESION & DURABILITY

Gentoo has robust adhesion to painted, plated, and bare metallic substrates, as well as glass and surface primed plastics. The coating has demonstrated excellent resistance to salt spray, UV exposure, and chemical exposure – significant improvements over traditional hydrophobic coatings.



ADVANCED CLEAR HYDROPHOBIC COATING



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CORROSION RESISTANCE

When used on top of other qualified systems, Gentoo further reduces corrosion and extends the lifetime of the barrier system and therefore the coated substrate. This is due to its excellent water and salt shedding properties and impact resistance. These properties also significantly reduce the effects of galvanic corrosion of dissimilar metals.

EASY CLEANING

The low sliding angle combined with the high dirt and solvent resistance of the coating allows for easy cleaning of many surfaces with less water.

CHEMICAL RESISTANCE

Offers superior resistance to most oils, solvents, and acids.

APPLICATION

Gentoo is a two-part coating that is mixed together and then applied as a single coat. It can be flow-coated, dip-coated, HVLP sprayed, or painted on with a brush or roller. It provides a lightweight, thin (4-6 microns) coating with minimal surface preparation.

HYDROPHOBIC DATA

	Contact Angle	Watershedding (50µl)
Acrylic	68°	21°
Polycarbonate	77°	13°
Polyurethane	99°	26°
Gentoo	116°	4°

TRANSPARENCY DATA

	Transparency	Haze
Untreated Acrylic	94	0.7
Gentoo Coated Acrylic	94	0.4
Untreated Glass	94	0.9
Gentoo Coated Glass	94.1	0.2

TABER ABRASION TEST AFTER ABRASION (500 CYCLES)

	Transparency	Haze
Untreated Polyurethane	89.2	18.8
Gentoo Coated Polyurethane	90.6	5.9
Untreated Acrylic	93.3	29.4
Gentoo Coated Acrylic	93.8	4.2

ADVANCED CLEAR HYDROPHOBIC COATING



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GENTOO ADHESION/CURED TESTING

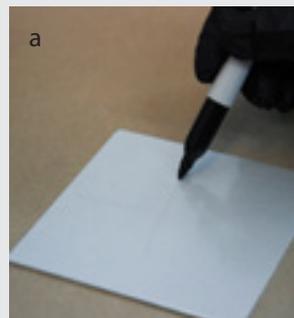
Through extensive testing, UltraTech has determined there are three simple tests that can be performed to determine if Gentoo is adequately hydrolyzed and cured to yield optimum performance.

1. SHARPIE® MARKER TEST

Place the fully cured Gentoo coated item on a clean, flat surface with good lighting.

- (a) Draw one horizontal line and one perpendicular line on the item to be tested using a fine point Sharpie® Permanent Marker.
- (b) Attempt to wipe off the two marks using a dry cloth or paper towel.

The marks will be completely removed from a properly coated and cured item.

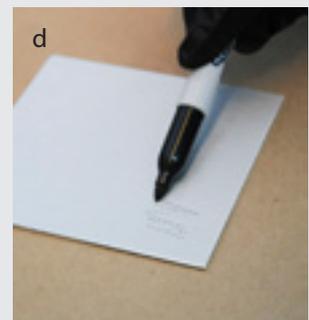
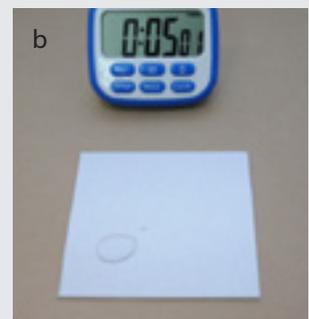
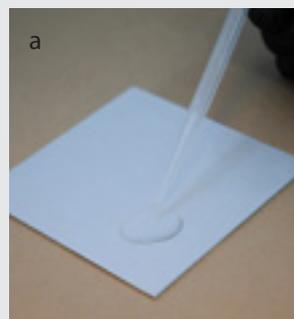


2. ACETONE TEST

NOTE: This test is best performed on a flat item coated with Gentoo.

Place the fully cured Gentoo coated item on a clean, flat surface with good lighting.

- (a) Use a disposable pipette to place a droplet of pure Acetone about 1 cm in diameter, on the surface of the item to be tested.
- (b) Set a timer for 5 minutes. After 5 minutes has elapsed, tip the item at a 90° angle to allow the acetone to run off.
- (c) Gently wipe the item dry and rub a fine point Sharpie® Marker over the area where the acetone was applied.
- (d) On a properly coated and cured sample the Gentoo coating will not be removed by the acetone and the marks can easily be wiped away with a dry cloth or paper towel.



ADVANCED CLEAR HYDROPHOBIC COATING



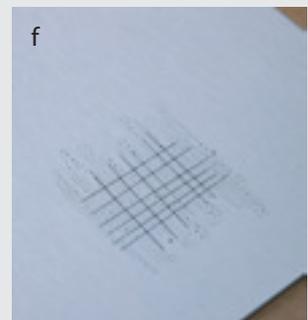
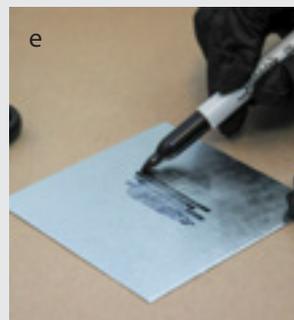
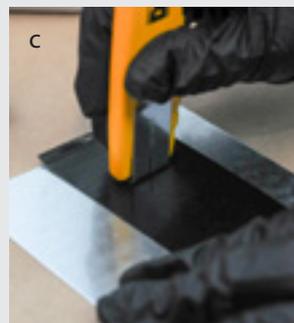
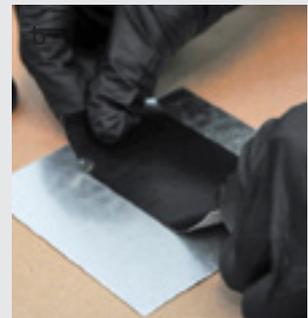
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3. TAPE ADHESION TEST

This is a modified version of ASTM D3359 "Measuring Adhesion by Tape Test".

Place the fully cured Gentoo coated item on a clean, flat surface with good lighting.

- (a) Use a cutting tool such as a sharp razor blade, scalpel or knife to make 6 horizontal cuts through the coating to the substrate. Each cut should be approximately $\frac{3}{4}$ inch long and about $\frac{1}{8}$ inch apart. Make 6 vertical cuts of the same length and spacing through the horizontal cuts to form a 5 by 5 grid of squares. Lightly brush away any loose flakes of coating.
- (b) Cut a piece of strong tape such as Black Gorilla Brand tape or high quality duct tape of sufficient size to extend over all of the cuts in every direction.
- (c) Center the tape over the cut area and use a pencil eraser or flat object to smoothly and firmly press the tape down over the cut area.
- (d) Remove the tape by pulling one end smoothly and rapidly (not jerked) back upon itself
- (e) Rub a Sharpie Marker over the entire cut area. If the Gentoo coating has been removed, dark patches will appear between the cuts.
- (f) Compare the test pattern on the item being tested to the chart on the next page, and rate the adhesion. A properly coated and cured item should yield a 5B rating. Some substrates may need a pre-treatment to attain a 5B adhesion. This is detailed in the preparation and coating instructions.



LOCATIONS



IKK Group of Companies
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www.unitech-ikk.com
www.unimetal-ikk.com
www.sfsp-ikk.com

