



**We Kill Mold CR s.a. is proud to announce the launch of these amazing new **NANO TECHNOLOGY** products in Costa Rica.**

**We are the only company in Costa Rica offering these products and services.**

We Kill Mold CR s.a.. now exclusively offers a totally new concept in mold control, sanitizing, disinfecting and protecting homes, cars, boats, and businesses. Saving our customers thousands of dollars a year in maintenance costs and utility bills.

**+++++ MOLD BUSTER Z 7000 +++++**

**This product is perfect for the OPEN AIR life style in Costa Rica. It is NOT necessary to close your building up tight for it to be effective!**

Today we are under attack by a microscopic army. These microbes arrive in the form of bacteria, viruses, mold, mildew, fungi, algae, and other organisms. Once established, these harmful microbes may cause foul musty odors, discoloration, property damage, allergies and disease.

Many of these microbes have mutated or adapted to the poisons being used to control them. Chemicals must become more targeted and stronger. These harmful microbes are being called "SUPER BUGS".

While other antimicrobials rely on poisons, toxic chemicals or heavy metal ions. **Mold Buster Z 7000** utilizes a patented molecular **nano technology** that destroys microbes mechanically, without creating "superbugs". **NO POISONS!**

**Mold Buster Z 7000** will safely and effectively reduce disease and odor-causing microbes by up to 99.99% and inhibit their return for months and years at a time from a single application, providing our customers the ultimate in cleaner, safer living.

**Mold Buster Z 7000** is based on the revolutionary new **nano technology**. The unique mode of action ensures effective, long-lasting protection against a broad range of harmful microbials. Our product range, is available now for commercial, industrial and residential applications.

**Mold Buster Z 7000** is a clear, colourless, anti bacterial solution. it contains no thickeners, stabilizers, colorants, dyes or additives. It is non-toxic, non-mutagenic, non-teratogenic and non-allergenic. It is safe for use with people, animals and plants. It is non-oxidative so is safe for application to a wide variety of surfaces and materials including fabrics, carpet, upholstery, drapes, linens, wood, plastics, stone, porcelain and metals.

**Mold Buster Z 7000** contains no chlorine and on microbial interaction will not produce halogenated by-products of disinfecting such as carcinogenic trihalomethanes.

Application to surfaces produces an invisible, transparent and durable antimicrobial film that will not transfer on contact with other surfaces and is non-leaching on contact with water or solvents. Once applied, the bonded antimicrobial film is non-volatile, odorless, and colourless and produces no chemical vapors.

**Mold Buster Z 7000** has been found to be effective against a huge array of microbes, including but not limited to:

- Molds of all kinds
- Staphylococcus aureus
- Methicillin resistant Staphylococcus (MRSA)
- Escherichia coli (E. coli)
- Vancomycin resistant Enterococcus (VRE)
- Legionella pneumoniae
- Citrobacter Freudii (MS2)
- Clostridium Difficile (C Diff)
- Various Salmonella strains
- Listeria monocytogenes
- Influenza A

**THIS NEW PRODUCT IS A TECHNOLOGICAL REVOLUTION IN VIRAL,  
BACTERIAL AND FUNGAL (MOLD) CONTROL.**

**Mold Buster Z 7000 :**

- is an anti-microbial solution with a long residual life.
- has the ability to significantly improve individual and community wellbeing.
- is a solution to long lasting antibacterial control.
- is non toxic, non-mutagenic, non-teratogenic and non-allergenic.
- contains no thickeners, stabilizers, colorants, dyes, fragrances or additives.
- is safe for use with people, animal, plants and safe around food.
- is non-oxidative - safe for application to a wide variety of surfaces and materials including fabrics, carpet, upholstery, drapes, linens, wood, plastics, stone, porcelain and metals.

**Mold Buster Z 7000** is the most advanced **nano technology** providing non toxic, non allergenic, anti fungal and anti microbial treatments for furnishing, flooring, apparel and industrial textiles. It has been successfully tested against all known super bugs including the H1N1 and even Norovirus. It is safe for people, animals and the environment.

An application on driveways, sidewalks, interior and exterior walls, ceilings, floors, clothing, shoes, furnishings, bedding, carpets and even artificial grass surfaces will provide maximum protection against mold growth and pathogenic cross contamination for years.

**Mold Buster Z 7000** is highly effective in odor eradication and enhances the life and performance of high performance fabrics, military uniforms, medical and service uniforms sportswear and under garments. It has a long active life, often exceeding the life of the surface itself.

### **Mold Kill V 5000 Surface Preparation Solution.**

For our **MOLD BUSTER Z 7000** or **WKM Self Clean TX-85/TX-220** to perform as designed, we must first make sure that the existing surface is clean and mold free.

1. The presence of mold is usually detected by either a “wet wool” smell or a visible sign of dark spots.
2. A “mold spot” is a mass of mold cells that have formed a colony. Under a microscope, they appear as a central cell with many ‘shoots’ that can extend up to a meter from the nucleus.
3. These shoots (called ‘hyphae’) find moisture and bring it back to the main cell. Nutrients from the moisture feed the mold and any unwanted matter is expelled as a gas (a process called ‘aerosolising’). These gases produce the “damp wool” smells we associate with mold and some are actually ‘mycotoxins’. These cause allergic reactions, asthma, headaches and are very dangerous to your health.
4. Because of the possible presence of mycotoxins, we should treat all mold as potentially dangerous and for this reason we recommend that appropriate Personal Protection Equipment such as a mask and eye protection.
5. In order to prevent mold from surviving, we need to kill its ‘main cell’. For this reason, we apply **Mold Kill V 5000** that penetrates the ‘hyphae’ (the shoots) and travels back to the main cell. The composition of this mixture is very important as it penetrates the hyphae via osmotic pressure. This product is formulated to provide the necessary reaction to kill the mold at its source. Destroying the roots.
6. After this process we apply our **Mold Buster Z 7000** or **WKM Self Clean TX-85/TX-22** which is formulated to prevent new mold, germs, bacteria's, and viruses from growing for years.
7. Bleach does not kill mold. Rather, it works in the same manner as when applied to hair, where it removes the color pigments but doesn't kill the hair. Bleach used on mold removes the color pigment but does not kill the mold itself (it just reduces visibility to the naked eye) and the mold will return. Therefore, bleach should not be used in this process.

## **WKM Self Clean TX-85/TX-220**

### **What is Nano Technology ?**

Nanotechnology, the revolutionary science and art of manipulating matter at the atomic or molecular scale. Nanotechnology is not just about the size of very small things. More important, it is about structure and the ability to work. Research in areas related to nanomaterial is needed to develop manufacturing techniques, in particular, is a synergy of top-down with bottom-up processes.

When a matter is as small as 1 to 100 nanometers, many of its features will easily change and form into many different unique conditions both different from macro-matters and single atom due to the quanta effect, regional confinement of matter, and huge surface or interface effects. The final objective of nanometer technology is to produce products of special functions with new physical and chemical features by making atoms, molecules and matters presenting their features directly in the length of a nanometer: the strength of ten times of iron could be very light, all information in a library could be stored in a chip the size as a piece of square sugar, and tumors the sizes of only several cells can be detected.

The US Business Weekly listed nanometer technology as one of the three key areas in the 21st century . From 1999, the US government decided to put the research in nanometer technology into one of the 11 key areas in the first ten years of the new century. In February 2000, US president Bill Clinton announced that the US Federal Government would invest 495 million dollars to set up a work group and put forth a research report on the promotion, saying that it will lead to the next industrial revolution as a top priority.

Titanium Dioxide's photocatalytic characteristic is greatly enhanced due to the advent of nanotechnology. At nano-scale, not only the surface area of titanium dioxide particle increases dramatically but also it exhibits other effects on optical properties and size quantization. An increased rate in photocatalytic reaction is observed as the redox potential increase as the size decreases. Energy from any ambient light source can be used effectively as the energy source of photocatalysis instead of UV light.

### **What is a Photocatalyst ?**

A promising approach for remediating air quality contaminants is to employ photocatalyst that oxidize these compounds. By definition, photocatalyst is a catalyst that accelerates photoreaction.

When photocatalyst is exposed to light in the presence of water vapor, two highly reactive substances are formed: hydroxyl radicals [OH] and a superoxide anion [O<sub>2</sub><sup>-1</sup>]. It allows the oxidation of airborne VOCs and toxic organic matter into carbon dioxide and water at room temperature with UV or near-UV light source. It does not need a special energy and use only clean energy in ordinary life.

Specific titanium dioxide has strong photo catalyst reaction. It has strong oxidation and decomposition strength.

Photocatalyst has the following advantages over any current air purification technologies:

- Real destruction of pollutant rather than a simple transfer on a substrate
- Degradation of pollutant at ambient temperature and pressure
- Build with easily available materials and by mean of well-known techniques
- Economical, cheap and low energy consumption
- Adapted for a large range of pollutant (VOC, bacteria, mold)

### What is Titanium Dioxide ?

Titanium dioxide, also known as titania, is the naturally occurring oxide of titanium, chemical formula  $TiO_2$ . Approved by the food testing laboratory of the United States Food and Drug Administration (FDA), Titanium Dioxide is considered a safe substance and harmless to human. It is commonly used in paint, printing ink, plastics, paper, synthetic fibers, rubber, condensers, painting colors and crayons, ceramics, electronic components along with food and cosmetics. Many studies have been published on the use of titanium dioxide as a photocatalyst for the decomposition of organic compounds. After illuminated by light, titanium dioxide produces hydroxyl radicals, which react with the organic matters in the air to form non-toxic inorganic matters.

Titanium Dioxide molecules contain electrons that are confined to relatively narrow energy bands. The band of highest energy that contains electrons is the valence band, while the band lying above the valence band, i.e. the conduction band, has very few electrons. The difference in energies between the highest energy of the valence band and the lowest energy of the conduction band is termed the band gap energy. When a semiconductor absorbs a photon of energy equal to or greater than its band gap, an electron may be promoted

from the valence band to the conduction band leaving behind an electron vacancy or "hole" in the valence band. If charge separation is maintained, the electron and the hole may migrate to the catalyst surface where they participate in redox reaction with sorbed species

### **How they work together for Deodorizing, VOC and Odor Remediation, Sterilizing, Anti-Bacterial and Mold Prevention ?**

On the deodorizing application, the hydroxyl radicals accelerate the breakdown of any Volatile Organic Compounds or VOCs by destroying the molecular bonds. This will help combine the organic gases to form a single molecule that is not harmful to humans thus enhance the air cleaning efficiency.

Some of the examples of odor molecules are: Tobacco odor, formaldehyde, nitrogen dioxide, urine and fecal odor, gasoline, and many other hydro carbon molecules in the atmosphere. Titanium dioxide has strong oxidation affects to single-celled organism that includes all bacteria and fungus. The very strong oxidizing power of Titanium Dioxide can destroy bacteria's cell membrane, causing leakage of the cytoplasm, which inhibits bacteria's activity and ultimately results in the death and decomposition of bacteria. Generally speaking, disinfections by titanium oxide is three times stronger than chlorination, and 1.5 times stronger than ozonation.

### **Super Hydrophilic Property**

#### **Self-Cleaning, Anti-Soiling and Anti-Fogging**

The hydrophilic nature of titanium dioxide, coupled with the gravity, will enable the dust particles to be swept away following the water stream, thus making the product self-cleaning.

When the surface of photocatalytic film is exposed to light, the contact angle of the photocatalyst surface with water is reduced gradually. After enough exposure to light, the surface reaches super-hydrophilicity. In other words, it does not repel water at all, so water cannot exist in the shape of a drop, but spreads flatly on the surface of the substrate. And the water took the form of a highly uniform thin film, which behaves optically like a clear sheet of glass.

Most of the exterior walls of buildings become soiled from automotive exhaust fumes, which contain oily components. When the original building materials are coated with a photocatalyst, the dirt on the walls will wash away with rainfall, keeping the building exterior clean at all times.

### **Air Purification Technology Comparison**

#### **HEPA (High Efficiency Particle Arresting) Filter**

Most widely known method for purifying air. Depending on the filter size, it can clean up to 99.99% of particulate in the air with proper ventilation. They are not effective on treating mold, mildew, bacteria, and other fungi.

#### **Electrostatic Filtration**

Another filtration system with a negatively charged surface is used to attract particulate. In comparison to most HEPA systems it is more effective in trapping smaller micron particulate and effective in clearing smoke from the air. Low levels of ozone may be produced which can neutralize most mold, mildew, bacteria, and other fungi that comes in contact with the filter.

#### **Ionization**

Also uses a negatively charged surface to produce and expels an abundance of negative ions and cause suspended particles to cling to walls, floors, and other surfaces . Most ionizers are effective in settling dust and particulate out of our breathing space.

## Ozone

Ozone is a very powerful oxidizer that will neutralize odors, mold, mildew, bacteria, and other fungi. This technology is commonly used in flood and fire restoration. Ozone is found to be effective because it works on the problem at the source and air does not have to be pulled through the unit for treatment.

## UV Germicidal Lamps

Commonly used for disinfecting purposes. This technology is effective in sterilizing air and surfaces that come in contact with the UV light. UV has been proven in both air and water applications to inactivate bacteria and viruses to prevent them from reproducing.

## Photocatalysis

Using light to react with a catalyst resulting in oxidation. This is found to be effective in destroying mold, mildew, bacteria, other fungi, dust mites, and many odors. This technology is produced with an Ozone/UV lamp set in a variety of combinations. When this type of photocatalysis is combined with the natural humidity in indoor air it creates hydroxyl radicals and super oxide ions that are effective in combating bacteria, fungi and VOC. This method is also a pro-active approach that goes to the source for treatment.

	Hepa Filter	Electrostatic	Ozone	UV	Ionizer	Photocatalysis
<b>Mold</b>	Poor	Good	Good	Good	Poor	<b>Excellent</b>
<b>Bacteria</b>	Poor	Good	Good	Good	Poor	<b>Excellent</b>
<b>Dust Mites</b>	Poor	Poor	Poor	Good	Poor	<b>Excellent</b>
<b>Gases</b>	Poor	Poor	Good	Good	Poor	<b>Excellent</b>
<b>Odors</b>	Poor	Good	Good	Poor	Good	<b>Excellent</b>
<b>Smoke</b>	Good	Good	Good	Poor	Excellent	<b>Good</b>
<b>VOCs</b>	Poor	Poor	Good	Good	Poor	<b>Excellent</b>
<b>Pet Dander</b>	Good	Good	Good	Good	Good	<b>Excellent</b>

## Our Product Description

### WKM Self Clean TX-85/TX-220

A surface coated with WKM Self Clean TX-85/TX-220 achieves photocatalytic effect and hardness strength after drying at room temperature. WKM Self Clean TX-85/TX-220 is a neutral solution that can be applied to various materials including stucco, stone, tile, glass, metal and resin. The Photocatalytic effect and hardness of the film is increased when it is heated by direct sunlight. HVLP Spray coating is the most suitable way to apply WKM Self Clean TX-85/TX-220. Substrates can be dipped into the WKM Self Clean TX-85/TX-220 liquid or it may be applied by brush or roller. Once applied and dried the WKM Self Clean TX-85/TX-220 film does not decrease in hardness over the years. It is extremely durable. We have tests proving over 10 years of service.

**WKM Self Clean TX-85/TX-220** provides photocatalyst surface coating for long-lasting effects of deodorization, sterilization, and anti-soiling purposes. Using our specialized spray-coating equipment, a fine mist of photocatalyst can be applied on different types of surface material that guarantees the maximum result.

#### **In automobiles**

Photocatalyst can deodorize the interior and gives the driver and passengers a more pleasant driving experience. Odor embedded in the carpet and seats will eventually be decomposed and gives the car owner that new car feel again.

- Company Cars
- Public transportations (bus and train)
- Rental cars
- Taxis
- Limousines

#### **Building Exterior**

**WKM Self Clean TX-85/TX-220** Nano-TiO<sub>2</sub> Photocatalyst can be applied on the exterior of a building to treat and prevent unsightly damages caused by acid rain, moisture, and smog. It cuts down the overall maintenance cost and time.

- Hotels and motels
- High-rise buildings
- Apartments
- Condos
- Commercial business complexes

#### **Deodorizing Indoor Environment**

**WKM Self Clean TX-85/TX-220** Nano-TiO<sub>2</sub> Photocatalyst decomposes odor molecules caused by tobacco smoke, pets, chemicals in detergents, urine and fecal matters. Photocatalyst will continuously deodorize your living space and eliminates the sources.

- Restaurant
- Public restrooms
- Hotel and motel rooms
- Senior Centers
- Pet shops and animal hospitals

#### **Sanitizing and Sterilizing Environment**

With a constant amount of light provided, **WKM Self Clean TX-85/TX-220** Nano-TiO<sub>2</sub> photocatalyst can control and prevent growth of bacteria, germ, and mold. Any harmful bacteria and germ would be killed and eventually decomposed in this sterilized condition.

- Hospital
- Schools
- Public Restrooms
- Restaurant
- Day-Care centers

For more details and arrange for an estimate on your property please call:  
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