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## **ASE SANITOL SERIES PRODUCT Q & A**

### **1. TIO<sub>2</sub> Air Purification Circulator (TIO<sub>2</sub> 空气洗净循环)**

The Solution to Indoor Air Quality (IAQ)

室内空气质量 (IAQ) 的解答

### **2. What is Titanium Dioxide (TIO<sub>2</sub>)?**

什么是二氧化钛(TIO<sub>2</sub>) ?

TIO<sub>2</sub> is the natural occurring oxide of titanium. Approved by FDA, TIO<sub>2</sub> is a safe substance and harmless to humans. It is commonly used in paint, printing colors, plastics, fibers, rubber, condensers, ceramics, electronic components along with food and cosmetics. Many studies have been published on the use of TIO<sub>2</sub> as a photo-catalyst for the decomposition of organic compounds. After illuminated by light, TIO<sub>2</sub> produces hydroxyl radicals which react with organic matters in the air to form non toxic inorganic matters.

TIO<sub>2</sub> 是钛自然发生的氧化物。由 FDA 批准, TIO<sub>2</sub> 是安全物质和对人无害。它是常用的在油漆、打印颜色、塑料、纤维、橡胶、冷凝器、陶瓷、电子零件和化妆用品。研究证明 TIO<sub>2</sub> (光催化剂) 有效分解有机化合物。在有光照亮后, TIO<sub>2</sub> 在空气中生产羟基, 分解有机物成为非毒性物质。

### **3. What is Photo-catalytic?**

什么是光催化作用的?

When photo-catalyst TIO<sub>2</sub> captures UV light, it forms activated oxygen from water or oxygen in the air. This technology was founded by the Japanese 18 years ago. This process is similar to photosynthesis, in which chlorophyll captures sunlight to turn water and carbon dioxide into oxygen and glucose. The formed activated oxygen is strong enough to oxidize and decompose organic materials or smelling gas, and kill bacteria.

当光催化剂 TIO<sub>2</sub> 夺取紫外光时, 它从空气中的氧气和水形成被激活的氧气。这技术由日本人在 18 年前发现。这个过程是相似的于光合作用, 叶绿素夺取阳光把水和二氧化碳变成氧气和葡萄糖。被形成的激活氧气有效地氧化和分解有机材料或气体和杀害细菌。

### **4. Benefits of Photo-catalytic treatments**

光催化作用的治疗的好处

Hydroxyl radicals are among the strongest oxidizing species, even much stronger than chlorine, ozone, and peroxide. They act as very powerful disinfecting agents by oxidizing the cells of micro organisms, causing rupture and leakage of vital composition.

**Deodorizing**-the hydroxyl radicals accelerate the breakdown of VOCs by destroying molecular bonds. This will help to combine the organic gases to form a single molecule that



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is not harmful to humans thus enhance the air cleaning efficiency. Some of the odors molecules are tobacco, formaldehyde, urine, fecal odor, gasoline...

**Sterilization**, Anti Bacterial and Mold Preventing - nano photo-catalyst TIO<sub>2</sub> has strong oxidation effects to single-celled organism that includes all bacteria and fungus. This very strong oxidizing power of TIO<sub>2</sub> can destroy the bacterial cell membrane, causing leakage of the cytoplasm, which inhibits the bacteria's activity and ultimately results in its death. Generally speaking, TIO<sub>2</sub> is 3 times stronger than chlorination and 1.5 times stronger than ozonation.

羟基是在氧化的种类之中最强的，比氯、臭氧和过氧化物甚而强。羟基是非常强有力的杀菌剂，通过氧化微有机体细胞，导致重要构成破裂和漏出。

**除臭** – 羟基通过毁坏分子加速分解操作细节 UVMAX SM29。这将帮助结合有机气体形成对人无害的分子而提高空气清洁效率。分解气味分子如烟草，甲醛，尿，粪便气味，汽油...

**杀菌** – 抗细菌和防止孢子- 纳米光催化剂 TIO<sub>2</sub> 有强的氧化作用，有效抵抗细菌和真菌及分解细胞有机体。TIO<sub>2</sub> 有非常强的氧化本领可以毁坏细菌细胞膜，导致细胞质的漏出，停止细菌活动和导致它的死亡。一般来说，TIO<sub>2</sub> 比氯化强 3 倍，臭氧强 1.5 倍。

## 5. TIO<sub>2</sub> Photo-catalyst Reaction

TIO<sub>2</sub> 光催化剂反应

- Dirt-preventing, Self Cleansing 防止灰尘，洗涤
- Sterilization, Bacteria inhibition, Anti-molding 杀菌，抗菌
- Deodorizing, Air purification 除臭，空气清新

## 6. Limitations of TIO<sub>2</sub>

TIO<sub>2</sub> 的局限

- Insufficient light will limit the effectiveness of TIO<sub>2</sub>. 60 watt bulbs or higher is recommended for best result. 不足的光将限制 TIO<sub>2</sub> 的有效率。60 瓦特电灯泡或更高为最佳的结果建议使用。
- Wet Condition 潮湿情况
- Walls with water proofing problem 墙壁防水问题
- Air-Cond Ducting problems 空气管问题