



EFFICIENT, SAFE, GREEN

We Aim to be a Catalyst in Developing Advanced Technology Solutions for a Sustainable Environment



ANANO SPHERE SDN BHD

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Catalyst Towards a Sustainable Environment



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INTRODUCTION

Anano Sphere Sdn Bhd (Anano) is an environmental technology company, incorporated in the year 2012. Anano specializes in promoting advanced technology solutions for environmental improvements.

We are currently promoting a pioneer solution to:

- Eliminate bacteria and viruses
- Protect against mold and fungi
- Purify air and water



OUR VISION

We aim to be a catalyst in developing advanced technology solutions for a sustainable environment.

OUR MISSION

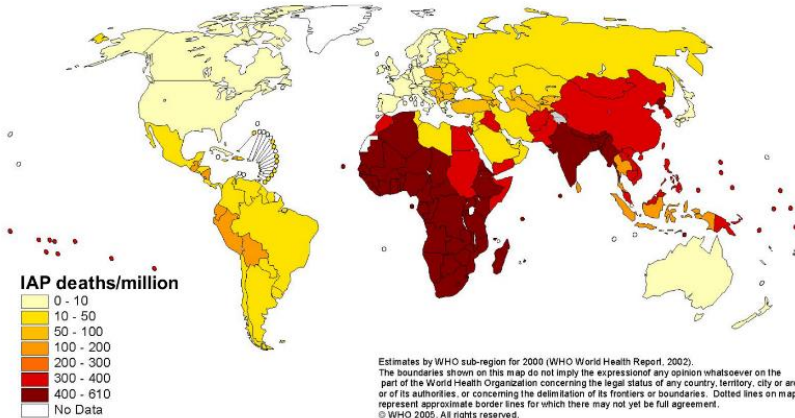
- To deliver advanced technology solutions through inspired innovations
- To connect the dots globally for our employees, customers and communities
- To set internationally recognized standards by being the industry leader
- To embrace social responsibility to support our communities and environment

Catalyst Towards a Sustainable Environment



GLOBAL CHALLENGES

In 2000, indoor air pollution was responsible for more than 1.5 million deaths. Today, according to WHO, 4.3 million people die each year from the exposure to household air pollution. More than 50% of premature deaths among children under 5 are due to pneumonia caused by particulate matter due to pollution. If the existing technology is truly viable, why are we seeing such terrifying statistics being published by WHO? A sustainable solution is required to heal the indoor air environment. Here we are providing the solution via photocatalyst.



There are three danger levels of indoor air pollutants. The respective health effects are shown in the figure on the right.



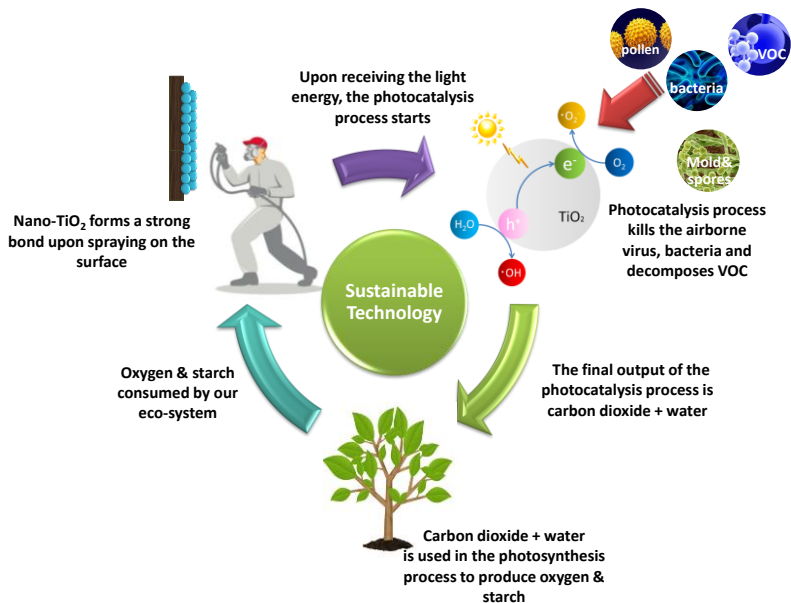


TECHNOLOGY DESCRIPTION

Nano-TiO₂ Photocatalyst (commercially known as **CleanCoat™**) comes in a liquid form, with the main active ingredient being Titanium Dioxide particles in the range of 2-3nm. Nano-TiO₂ will perform a catalyst function under visible light to decompose organic pollutants into harmless substances such as carbon dioxide and water through the oxidation process

BENEFITS

- Transparent and water based coating
- Kills bacteria and fungus
- Inhibits virus growth
- Decomposes airborne toxic and volatile organic compounds (VOC)
- Contributes to a sustainable development for the by-product (water and carbon dioxide) of the catalyst reaction, which are then used in the photosynthesis process thus completing the eco-friendly process

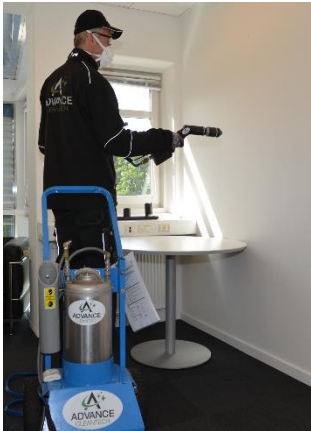




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APPLYING NANO-TiO₂

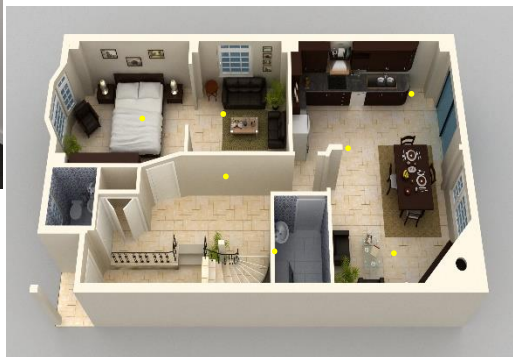
1. CleanCoat™ solution is sprayed onto walls, floors and ceilings using a special electromagnetic spray gun
2. Nano-TiO₂ + light + water + oxygen will create strong oxidation reactants
3. Natural air movement brings pollutants to the walls
4. The oxidation reactants at the wall area decompose the pollutants
5. The air is purified



CleanCoat™ is sprayed on the wall using the Electrostatic Spraying technology



Amount of pollutant is high before spraying



Amount of pollutant is low after spraying

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APPLICATIONS

Several key industries that will benefit from CleanCoat™



Hospitals



Childcare Centres



Restaurants / Bakeries



Office Buildings



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INVENTOR PROFILE

Assoc. Prof. Ir. Dr. Srimala Sreekantan
School of Materials & Mineral Resources Engineering
Universiti Sains Malaysia



Assoc. Prof. Ir. Dr. Srimala Sreekantan is a lecturer from the School of Materials & Mineral Resources Engineering, Universiti Sains Malaysia. She has spent almost 8 years to develop, optimize and simplify the technology that lies in the synthesis of nanoparticles, fabrication of nano oxides and advanced ceramic materials which are of high significance for green energy, biomedical and environment applications. Dr Srimala's dedication in recent years in the environmental field has resulted in an invention called photocatalyst Nano-TiO₂, which decomposes and removes pollutants turning them into harmless substances. She has published over 70 Institute of Scientific Information (ISI) international journals and presented more than 130 research papers in international and national conferences. Dr Srimala has won numerous international awards and recognitions for her innovative solutions from technology, environment and as an exemplary women leader in her field. She has also worked with different industries (Orthopaedics Strait, BBraun) to attain insights to continuously improve the technology applications. Her distinguished strength and her passion to fuse theory from lecturing, practicality from research together with blue ocean thinking has resulted in her innovative solutions that are commercially viable to address industry needs, with special focus towards environmental preservation.

International & National Awards

- *Gold Medal with the Congratulations of the Jury from 37th International Exhibition of Inventions New Techniques and Products in Geneva, Switzerland, 1-5th April 2009*



- *The Gold Medal, Korea International Women's Invention Exposition (KIWIE) 2011, Seoul, Korea, 4-7th May 2011*
- *The Gold Medal, British Invention Show (BIS) 2011 in London, UK, 19-22nd October 2011*
- *The Gold Medal, International Trade Fair: Ideas-Inventions-New Products, Nuremberg, Germany, 29th Oct 2011*
- *The Ecology Medal, International Trade Fair: Ideas-Inventions-New Products, Nuremberg, Germany, 30th Oct 2011*
- *Gold Medal, Malaysia Technology Expo 2008, Kuala Lumpur 21-23rd Feb 2008*
- *The best award, Malaysia Technology Expo 2010, Kuala Lumpur, 4-6th Feb 2010*
- *The Gold Medal, National Research & Innovation Competition 2012, 17-19th July 2012*
- *The Gold Medal, Malaysia Technology Expo 2013 , 21-23rdFeb 2013*
- *Malaysian for Women in Science Fellowship 2007 Award by L'Oreal with the support of the Malaysian National Commission for UNESCO, Nov 2007*

Selected International Publications

- *Journal of Alloys and Compounds*, vol. 490, pp. 436–442
- *Nanotechnology*, 21(36), Article ID 365603 (2010)
- *Journal of Nanoscience and Nanotechnology*, 12, 3170-3174 (2012)
- *International Journal of Hydrogen Energy*, 37(13), 10046-10056 (2012)
- *Ceramics International*, 38(4), 3001-3009 (2012)
- *Materials Chemistry and Physics*, 137, 991-998 (2013)
- *Electrochimica Acta*, 89, 585–593 (2013)
- *International Journal of Photoenergy* 2013; 745301, 6 pages
- *Journal of Nanoscience and Nanotechnology*, vol 13, no. 3, (2013), pp. 1696-1705
- *Journal of Material Science*, 47, 4019–4027 (2012)
- *Journal of the Ceramic Society of Japan*, 120(1398), 58-63 (2012)
- *Nanoscience and Nanotechnology Letters*, 4(8), 1-6 (2012)
- *The European Physical Journal – APPLIED PHYSIC*, 59(2), Article ID 20402, (2012)