Titanium Dioxide (TiO2) Photocatalysts for Water Purification

Tech ID: 23344 / UC Case 2010-119-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,322,948	06/18/2019	2010-119
United States Of America	Issued Patent	9,670,069	06/06/2017	2010-119

FULL DESCRIPTION

Background

More and more chemicals of various origins are being discharged into our local water streams, ending up at waste and water treatment facilities. These chemicals comprising of pharmaceuticals, personal care products, and other various industrial chemicals are currently not removed by typical wastewater treatment practices. Further, current regulations from the Food and Drug Administration do not require testing or removing these chemicals even as their amounts aggregate in our drinking water. Therefore, the general public is currently being exposed to these dangerous chemicals that pose significant adverse health risks.

Current Invention

UCR Professor David Kisailus and his research team have developed a novel water purification method using TiO_2 photocatalysts that neutralizes currently unfiltered chemicals. TiO_2 is a safe, naturally occurring substance that appears in many of our household products such as paints, plastics, and toothpaste. The proprietary TiO_2 composition can be applied to any substrate or surface where a light source provides the photocatalytic impetus to the TiO_2 to remove these harmful chemicals, odors, parasites, and microorganisms.

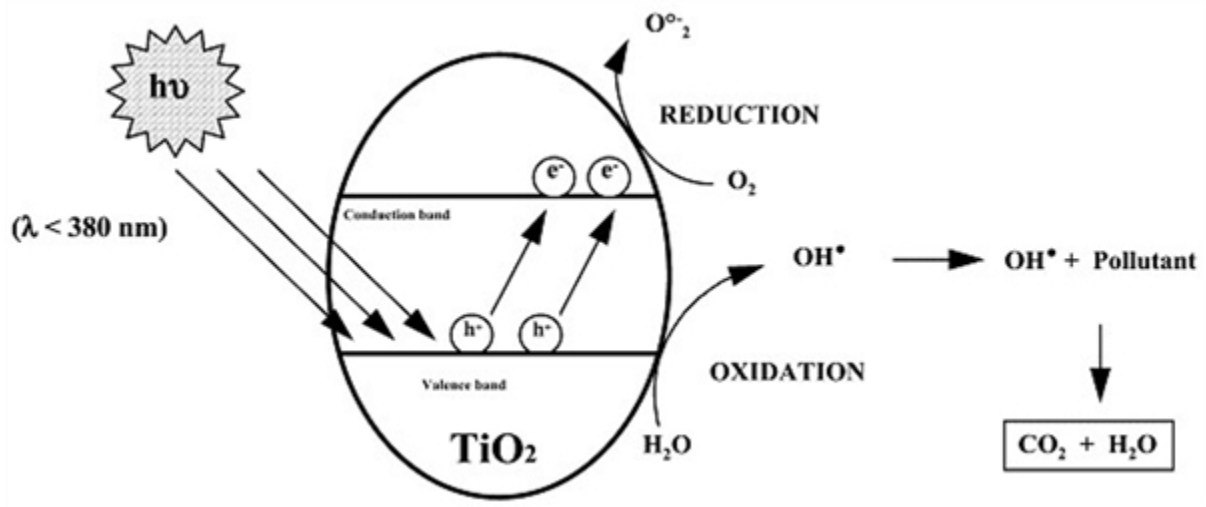

Illustration of the mechanism of TiO2 photocatalysis

ADVANTAGES

This groundbreaking technology has the potential to revolutionize the definition of “clean water.” Not only does it have the potential to integrate into our industrial wastewater treatment facilities, but it also can be incorporate into commercial and residential water purification products and systems.

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OTHER INFORMATION

KEYWORDS

clean water, water purification,

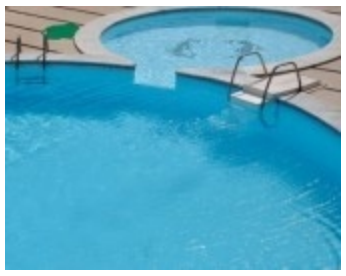
photocatalysts, titanium dioxide, TiO2

CATEGORIZED AS

- Optics and Photonics
  - All Optics and Photonics
- Biotechnology
  - Food
  - Health
- Materials & Chemicals
  - Biological
  - Chemicals
  - Composites
  - Nanomaterials
  - Pesticides and Insecticides
  - Thin Films
- Medical
  - Vaccines
- Nanotechnology
  - Materials

RELATED CASES

2010-119-0



Another application allows applying this novel TiO_2 composition as a harmless paint or film to public and private pools, hot tubs, or jacuzzis.

By utilizing just sunlight, the water can routinely cleansed of harmful chemicals, pathogens, and odors.

The University of California, Riverside is currently discussing licensing partnerships for this technology.

SUGGESTED USES

- Water treatment and purification systems
- Industrial and municipal waste water treatment
- Private and public swimming pools & hot tubs

INVENTIONS BY DAVID KISAILUS

Please review all inventions by Prof. David Kisailus and his team at UCR

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