

NANOTECHNOLOGY

Nano Titanium Dioxide acts as a photo-catalyst – when exposed to light it produces free radicals, that break down other molecules

Can food grade titanium dioxide break apart molecules found in blue methylene dye, leaving water clean and clear?

Scientists and engineers are designing materials at the nano-scale to take advantage of enhanced properties such as higher strength, lighter weight, and greater chemical reactivity.

BACKGROUND

Water is the most precious resource on the planet.

Over half of the world's population doesn't have access to clean water.

Is there a way to use nanotechnology and titanium dioxide to clean dirty water?



BREAKER OF MOLECULES

Using Food Grade Titanium Dioxide to cleanse water

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The bottle that had food grade titanium dioxide in the sun destroyed the blue dye within minutes, thus proving that TiO₂ can break molecules in organic dye and it acts as a photo-catalyst which enhances its ability to break down molecules faster. The remaining water was cloudy but when filtered, came out clear.

Bottles B and C had no change and remained blue. Bottle D's color faded slightly since it was exposed to indoor light. Perhaps this nanoparticle could be a facilitator is helping to cleanse water from other pollutants and make it drinkable.

RESULTS

1. Bottle A: H₂O, dye, TiO₂ (Sun)
2. Bottle B: H₂O, dye, TiO₂, foil (Sun)
3. Bottle C: H₂O, dye, foil (Sun)
4. Bottle D: H₂O, dye, TiO₂ (indoors)
5. Place bottles in locations.
6. Monitor all bottles in five minute intervals for 12 hours.
7. After this time period, compare and contrast all bottles.
8. Create tube filter (below) and filter water from bottle D.
9. Record observations.

EXPERIMENT

