

## The Deodorant Spray That Eats Pollution

(Abridged from) *Newsweek*, June 26, 2014

This could be the game-changing technology we've all been waiting for. It's got all the right buzzwords: nanotechnology, air-purifying, antimicrobial, green, sustainable. Just spray Pureti's titanium dioxide-based liquid all over your windows and walls : you've turned your home into a self-cleaning, pollution-eating machine.

Sporting facilities are just one of many structures and products being slathered in Pureti's liquid gold: London is considering a citywide program to apply it to roads and public buildings. NASA plans to test it for use on solar panels: If the panels stay cleaner longer, they stay at their highest level of energy efficiency.

Glen Finkel is Pureti's CEO. His pet project, though, is with the Asthma and Allergy Prevention Co., which is applying Pureti as part of a new protocol for transforming regular homes into hospitalgrade environments so that children with serious respiratory issues can stay out of the emergency room. It is currently in the Food and Drug Administration approval process; if the federal regulator gives the thumbs-up, Pureti could soon be considered a health product.

How does it work ? Titania pigment is the whitest of whites. The stuff shows up in products as wide-ranging as ink, toothpaste, cosmetic products, sunblock and plastics... It's common and it's cheap.

Titania uses light to speed up chemical reactions around it: when ultraviolet rays hit the surface of an object covered in titania, that triggers a chemical reaction which produces 'free radicals', that quickly seek out any organic matter and break it down into smaller molecules.

It's a good thing for planet Earth, because, for the most part, the organic molecules in the air tend to be dangerous for humans, the environment or both.

Honda and Fukushima, the two Japanese scientists that made the discovery, are currently on the short list to receive a Nobel Prize any year now. And they made that astonishing discovery over 40 years ago, in 1967.

So where has it been? If the stuff is so miraculous, why don't we all know about it? Why isn't every building we work and live in, and every material good we own, covered in titania? What are we waiting for?

The first attempts to bring titania to the market were in 1998, when the four largest glass manufacturing companies in the world all simultaneously launched "selfcleaning" photocatalytic glass. U.K.-based Pilkington, for example, created and heavily marketed a product called Activ. It has sold well enough in the U.K. and Canada, but in the U.S. sales have been disappointing.

That's why they are abandoning the "self-cleaning" rhetoric for the branding du jour: they're going green.

In Japan, by luck of historical confluence, the marketing problem solved itself. In 1998, a Japanese ceramics company took titania nanopowders and melted them into a glaze for tiles. The tiles were used in schools and hospitals throughout the country.

A few years later, SARS, a previously unknown viral respiratory illness, spread rapidly through Eastern Asia and killed 774 persons. But not in Japan. And when the tiles were found to inhibit the spread of SARS (and other viral and bacterial diseases), Honda and Fukushima became hometown heroes.

Nowadays, if you're launching a new product in Japan, you better include titania.

Titania in Japan is quite literally a billion-dollar market.

"I don't want to get on my soapbox, but it's become conventional wisdom that the way to make money in America is to be the best, second," says Finkel wistfully. "No one wants to try anything. Everyone talks about innovation — it's as American as apple pie — but get someone to go first? Forget about it."