The Magic Mineral in Bosch's New Dishwasher

By Tyler Wells Lynch September 26, 2012

Bosch is harnessing the power of zeolites in some of its new dishwashers.

If someone told you there is a certain mineral with the power to absorb moisture and, in doing so, releases enough heat to boil water, you would be skeptical. If that person also said that this magical object replenishes itself by releasing the absorbed—actually, "adsorbed"—water as soon as more hot water is added, you would call that person a witch.

Such is the strange trait of a class of microporous, aluminosilicate minerals known as zeolites. These materials, which can be either mined directly or produced synthetically, have been used in industrial settings for decades. But it wasn't until recently that appliance manufacturers began to make use of their unique cleaning and energy-saving properties.

So What Is Zeolite?

In the world of dishwashing, Bosch is the only brand to have developed a technology that makes use of zeolites. One of these machines was recently on display at the IFA expo in Berlin.

Without getting too scientific, here's how Bosch's Zeolite technology works: At the end of a wash cycle, moisture in the wash tub is churned into a container of zeolite "pebbles" beneath the main cavity. There, it undergoes a natural chemical process of adsorption, the byproduct of which is intense heat—enough to boil water. (Bosch reports that simply blowing moist air over a handful of dry zeolite pearls will cause the material to become painfully hot.) The remaining moisture in the wash tub is gradually siphoned out of the tub and sucked in by the zeolite.

The result is an extremely fast dry cycle, less energy consumption, and very dry dishes. Even more amazing is that, when a new wash cycle is begun and the heating element engaged, the adsorbed water is released back into the wash tub, thereby readying the minerals for another dry cycle. So in simple terms, the material is self-replenishing, and it never needs to be replaced. Ever.

It may seem unimaginable that a faster, self-replenishing product with a stronger drying performance is also more environmentally efficient, but it's true. Because the energetic properties of zeolite are the result of natural chemical reactions, no electricity is needed to engage it.

Okay, But What's the Catch?

Ah! There's always a catch. Right now it's price (no surprise) and availability. Only three dishwasher models feature Bosch's zeolite technology, and none of them are available in the US (only Europe, Australia, and India have the privilege). And if you can actually get your hands on one, it'll cost you at least $1,500. Of course, if it catches on—and if competitors develop their own versions—the price will drop.

Is it the Future?

Something about zeolite seems too good to be true. But when it comes to the raw science at the heart of zeolite's attractiveness, it's hard to argue with facts. Right now, the biggest impediment to its growth seems to be the cost of the dishwashers that use the technology, but that's no long-term obstacle. So who's to say zeolite will not be found in most dishwashers come 2020? It's quick, efficient, self-replenishing, durable, and frankly pretty cool.

While Bosch is the only brand to have developed a zeolite patent, they're not Apple—they probably can't afford to put the kibosh on competitors' attempts to create their own version of a zeolite drying system (zeolite detergents have been used in washing machines for decades). So this only strengthens the mineral's prospect as the dishwasher technology of the future—much like enzymes replaced phosphates as the dominant agent in detergents.

So yeah, put us on record saying we support this technology, whether it's Bosch, Siemens, Whirlpool, or Samsung who makes use of it.