

## Singaporean university develops ultra-fast batteries

English.news.cn 2014-10-13 15:28:56



SINGAPORE, Oct. 13 (Xinhua) -- Scientists at Singapore's Nanyang Technology University (NTU) said on Monday that they have developed ultra-fast charging batteries that can be recharged up to 70 percent in only two minutes.

Furthermore, the new generation batteries also have a long lifespan of over 20 years, more than 10 times compared to existing lithium-ion batteries.

"This breakthrough has a wide-ranging impact on all industries, especially for electric vehicles, where consumers are put off by the long recharge times and its limited battery life." NTU said in its media statement.

Currently, rechargeable lithium-ion batteries, which are commonly used in mobile phones, tablets and electric vehicles, usually last about 500 recharge cycles. This is equivalent to two to three years of typical use, with each cycle taking about two hours for the battery to be fully charged.

In the newly-developed battery, the traditional graphite used for the anode (negative pole) in lithium-ion batteries is replaced with a new gel material made from titanium dioxide.

Titanium dioxide is an abundant, cheap and safe material found in soil. It is commonly used as a food additive or in sunscreen lotions to absorb harmful ultraviolet rays.

Naturally found in spherical shape, the NTU team has found a way to transform the titanium dioxide into tiny nanotubes, which is a thousand times thinner than the diameter of a human hair.

This speeds up the chemical reactions taking place in the new battery, allowing for superfast charging.

"Electric cars will be able to increase their range dramatically, with just five minutes of charging, which is on par with the time needed to pump petrol for current cars," said Chen Xiaodong, who leads the researching team from NTU's School of Materials Science and Engineering.

Their work has been published in the latest issue of *Advanced Materials*, a leading international scientific journal in materials science.

The technology is currently licensed by a company for eventual production, and Chen expects it to hit the market in the next two years.