

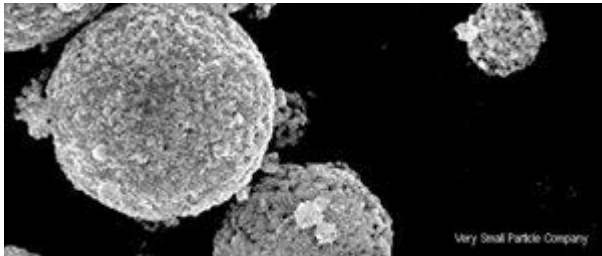
# Media Coverage

**Company:** VSPC  
**Date:** 31 March 2011  
**Publication:** Electronics News  
**Page:** Online

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## Aussie nano-scale particles for fast charging electric car batteries

By [Isaac Leung](#) on 31 March 2011



**Cars which fully charge in four minutes, one minute charges demonstrated**

**Nano-scale complex metal oxide material as cathode**

**Commercialisation stage**

**Possible future use in consumer electronics**

**Low-risk, scalable production process using off-the-shelf equipment**

[VERY Small Particle Company](#), an Australian nanotechnology manufacturer, is promising to revolutionise the batteries used in electric cars.

The Federal Government, through its Green Car Innovation Fund (GCIF), will invest \$2.09 million in VSPC to accelerate the final development of the new electric car batteries.

**Production of nano-scale battery cathode materials**



*Image courtesy: VSPC*

VSPC says it will use this money to optimise its Lithium Iron Phosphate (LiFePO<sub>4</sub>, or LFP) technology, so manufacturing can be scaled up to commercial production levels.

LFP is a nano-scale complex metal oxide being produced by VSPC using its own patented manufacturing process.

When asked about this process, David MacInnes, CEO of VSPC, told Electronics News that while the exact details are confidential, the operation can be easily scaled up and is low risk.

“One key advantage is that the equipment is available off-the-shelf and is used extensively in

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pharmaceutical and food production,” said MacInnes.

## Quick charge, quick discharge

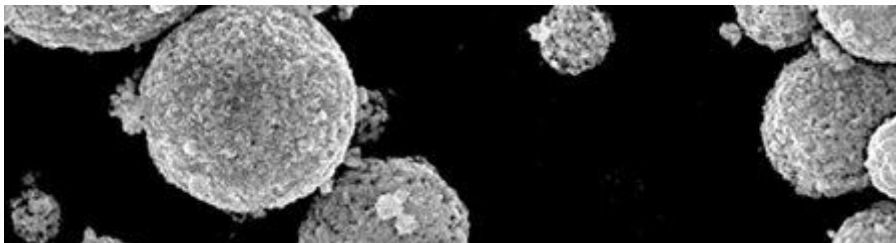
Used as a cathode material, the batteries incorporating LFP will enable electric vehicles to be recharged in about the same time as it takes to fill a tank of petrol.

MacInnes claims that the new batteries commonly attain full charge in four minutes, although full recharges in one minute have been demonstrated.

Until now, a big obstacle to electric cars has been the time needed to recharge the vehicles, with drivers having to recharge overnight, while not often yielding satisfactory mileage. Accelerating recharge times would make electric cars much more useable.

The integration of nanotechnologies into batteries is a fairly active research area currently, with Electronics News recently reporting on researchers from the [University of Illinois developing a 3D nanostructure for cathodes](#), with similar promises of faster charge times.

## Other benefits



*Image courtesy: VSPC*

It is not known how similar the two technologies are, but VSPC is currently at the commercialisation stage, with a new process which produces nanometre-sized grains of metal oxides, with batch-to-batch consistency, and constant product quality.

According to VSPC, current rechargeable lithium ion batteries use lithium cobalt oxide, which is toxic and unstable at high temperatures. LFP batteries are cheaper to produce, non-toxic, have fast charge times, high power density and can tolerate extreme conditions.

By changing the properties of the LFP particles, VSPC can tailor batteries to application needs.

“The small size and associated large surface area of the primary particles allow very high power performance,” MacInnes explained. “The agglomerated particle size is selected to suit the battery manufacturing process and is typically 6 micron or 18 micron in size.”

## Electric cars first, phones later

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*Image courtesy: VSPC*

By focusing on batteries for Hybrid Electric Vehicles, VSPC hopes to benefit from the move toward electric cars, driven by sustainability issues and limited oil supplies. The company says almost every major car manufacturer has an electric vehicle either in production or due for release in the next five years.

“Our vision is to install LFP batteries in electric cars throughout Australia and around the world,” MaInnes said.

While VSPC is currently focused on electric vehicles, MaInnes told Electronics News that LFP technology can be scaled down for use in consumer devices, with likely uses in power tools, portable computers and mobile telephones.

Furthermore, MaInnes claims VSPC is positioned to take advantage of new chemistries which will allow scaling up of production, and can adapt to new chemistries for producing nano-scale particles. A likely area of interest for the company is high energy Nano Composite Materials which could give 50 percent more energy.