Nanotechnology used to make watch case

May 6 2015, by Nick Carne

It's one thing to take a Swiss watch to Switzerland, quite another to impress the locals. Australian company Bausele recently did just that, thanks to some clever thinking at Flinders University in South Australia.

Prof David Lewis and colleagues in the Flinders Centre for NanoScale Science & Technology have developed a unique ceramic material that

sets new standards for the design and quality of watch cases.

Bauselite is very strong, very light and, because of the way it is made, avoids many of the traps common with conventional ceramics.

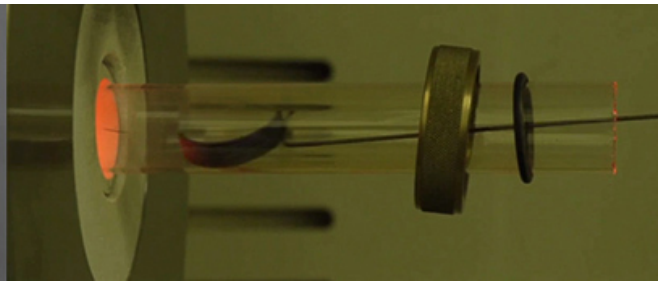
It was used to create Bausele's new Terra Australis, which this year became the first watch from Australia to be accepted for showing at Baselworld, the world's largest watch and jewellery trade fair. The response was more than pleasing.

"This is a great achievement as Baselworld is strictly an invitation-only event for the watch and jewellery industry, and the most important showcase for our industry anywhere in the world," said Bausele's Founder, Christophe Hoppe.

"We attracted attention from other watch brands who were interested in the look of our material and we might manufacture the component for them in the near future."

Ceramics are an increasingly popular alternative to steel in watch cases because they are lighter, are more tactile, and can be created in a range of colours. However, colour control can be difficult, the design options are limited and the final product can have flaws.

"Because the cases are cast, any tiny gaps or holes can create defect points that cause cracking or deformities," Prof Lewis said.

"That leads to a lot of rejects and a lot of wastage which is not what you want in a high-value, high-precision but low-volume manufacturing process. We have taken a step back and adopted a completely new way of making these components that avoids these problems."

The new material is only used for the top of the case, giving Bausele the flexibility to create a range of unique designs. Potentially it could offer customisation to the point where a buyer's name could be inscribed into the ceramic.

However, all these ideas can only become reality because of the manufacturing process.

Bauselite will soon be patented as a proprietary composite and discussions are under way to commence commercial manufacture in South Australia. And that might not be the end of the story.

"Our partnership began because Bausele came to us and essentially said 'you're good at nanotechnology is there anything you can do for us'," Prof Lewis said.

"When we sat down and asked more about what they do, how they do it and where the issues are, together we came up with a number of areas worth exploring.

"Case design was top of their list and we've had a great result, but there

are a lot of other exciting things that will hopefully be seen in the years to come."

The initial relationship was made possible through NanoConnect, a collaborative research program managed by Flinders with support from the South Australian Government.

NanoConnect provides a low-risk pathway for companies to utilise university-based research resources, such as advanced analytical equipment, they would not otherwise have access to.

Provided by The Lead South Australia