

Zero-waste powder coating process lands CSIRO scientist state honours

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CSIRO scientist Voytek Gutowski has won top honours in the 2010 Victoria Prize Awards handed out by the Victorian state government.



Associate Professor Voytek Gutowski, CSIRO, winner of the 2010 Victoria Prize Award

Assoc. Prof. Gutowski's leading contribution to the development of a zero-waste, no-emissions coating technology for non-conductive surfaces landed him the prize. The new process is a significant advance on traditional powder coating technologies used to coat plastics (and other non-conductive surfaces) in a wide range of industries, including automobiles, construction and furniture.

The standard powder coating process for plastics and other non-conductive surfaces sends volatile solvents into the atmosphere and generates significant amounts of solid waste. Powder coating of conductive surfaces relies on the powder having an opposite electrical charge to the surface being coated, because opposite charges attract. However, non-conductive surfaces do not have this level of charge, and retain at most 30 per cent of the material they are sprayed with.

The new process solves this problem by coating non-conductive surfaces with a fine layer of molecules that provide surface conductivity.

'We decided to think about how to make sure that as close as possible to 100 per cent of coating material would reside on the material we are trying to coat,' says Assoc. Prof. Gutowski.

The result is a new technology that completely eliminates waste and solvent emissions from the process.

