

## Bringing molten metal manipulation to SciTec 2018

**Rawwater, the Warrington-based molten metal underwater casting specialist, will present its novel means of sealing cracks in pipework and civil structures at SciTec 2018, the NNL Science and Technology Conference.**

Recognised as a world leader for its work in the development and application of molten bismuth alloys as a superior alternative to cement for plugging oil and gas well abandonments, Rawwater is creating a range of alloys to provide secure, high integrity, reversible seals and coatings for the sealing or encapsulation of various systems in advance of nuclear decommissioning. Examples of use include the emergency sealing of leaking pipework and the underwater repair of cracks in concrete containment structures.

Called Rawwater Molten Metal Manipulation (M<sup>3</sup>), the process uses four alloy classes - 10, 30, 80 and 150 - to provide sealing and encapsulation performance from -10°C to +150°C. Rawwater's M<sup>3</sup> technology is based on its ability to manipulate low melting point bismuth alloys - which also possess high radioactive shielding capability - prior to complete solidification, to achieve repairs or provide metallic coatings. Application is by a proprietary gun, depending upon whether molten metal is to be deposited underwater or in air.

"The nuclear industry was intrigued on hearing about our M<sup>3</sup> technology and we were invited to showcase our expertise to leading experts in February 2018," comments Rawwater managing director, Dr Bob Eden. "As a follow up to that successful presentation, which demonstrated how the Rawwater process is both highly effective and totally benign in its deposition, multiple parties requested that we continue our work beyond the proof of concept stage. We were also invited to showcase our Molten Metal Manipulation (M<sup>3</sup>) technology at SciTec 2018 – an event we are very much looking forward to attending."

As an exemplar at Rawwater's original presentation to nuclear industry experts in February 2018, the technology business used its M<sup>3</sup> coating technique to create a pressure vessel from a hen's egg, with the intent of then pressurising the egg to failure. As a true demonstration of adding strength to a delicate structure, Rawwater created a 100psi 'egg pressure vessel' which had to be split with a saw blade to access the uncooked white. Rawwater's M<sup>3</sup> testing has also involved active leak repairs, with alloy class 10 being used to seal water leaking from a perforated 304 stainless steel vessel.

For SciTec 2018, Rawwater is planning a number of imaginative demonstrations to showcase the considerable capabilities of M<sup>3</sup> and inspire delegates. A number of materials that have been sealed using the process will also be on display.

### **Funding from Game Changers**

Having identified a potential opportunity for its M<sup>3</sup> process to be used in advance of nuclear decommissioning, in October 2016 Rawwater was awarded funding to complete a Game Changers desktop study to develop a proof of concept business case. Upon successful completion, Rawwater secured additional funding from the Game Changers investment panel towards a project focused on developing an underwater concrete crack repair system. The project commenced in September 2017, with Rawwater presenting its results alongside other recipients of Game Changers funding earlier this year.

[www.rawwater.com/engineering/](http://www.rawwater.com/engineering/)

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