



Research Area:
Boosting the potential of small businesses for eco-innovation & a sustainable supply of raw materials



TyRec process

Whole Tyre Recycling within 30 Minutes with Molten Zinc – towards a circular economy

Composite Recycling Ltd

“The feasibility study of the H2020 SME Phase 1 SME has given us the knowledge that the demonstration and full scale plant are technically and financially feasible. We are now actively looking for partners to construct a demonstration scale plant. Especially as a very similar plant is able to recycle printed circuit boards, but requiring more research.”

Frank Riedewald, Composite Recycling Ltd, Co. Cork, Ireland

Project Description

Every year, over 1.5 billion tyres are discarded worldwide. Tyres are a composite plastic material and difficult to recycle, but they do contain value in their constituent raw materials, such as oil, carbon black, copper and steel. Composite Recycling Ltd has developed a unique, patented process to recycle tyres using molten zinc. Using molten zinc has a number of advantages over traditional processes. Economic benefits include:

1. Speed of tyre destruction is just 30 minutes rather than 2-4 hours as in traditional rotary kiln processes.
2. No shredding / granulating; whole tyres, savings in capital and operational costs.
3. No scale-up issues: doubling the surface area of the molten material doubles the throughput.

Because the process utilises existing, proven technologies from low cost industries, such as the hot dip galvanising and the carbon black manufacturing industry, the technological and hence commercial risk is minimised. The tyre recycling process was proven to work as intended in collaboration with University College Cork, Cork Institute of Technology and the Technische University Freiberg. The next step is to construct a demonstration plant and to proof the recycling of the tyres on this scale providing customers with the confidence of investing into full scale plants. For this step, we are looking for partners. For all the above, waste streams the European and US legislators are increasing the pressure on industry to develop a solution, presenting an opportunity.

Irish Contribution

The entire project was executed by Composite Recycling Ltd, a company based in the Rubicon Centre, Cork. The Cappa Centre of CIT helped in writing the H2020 proposal and analysed of the samples from an experiment involving a whole tyre.

Project Details

Contact Details

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Research area: H2020-SMEINST-1-2014

Phase 1. Concept & Feasibility Assessment

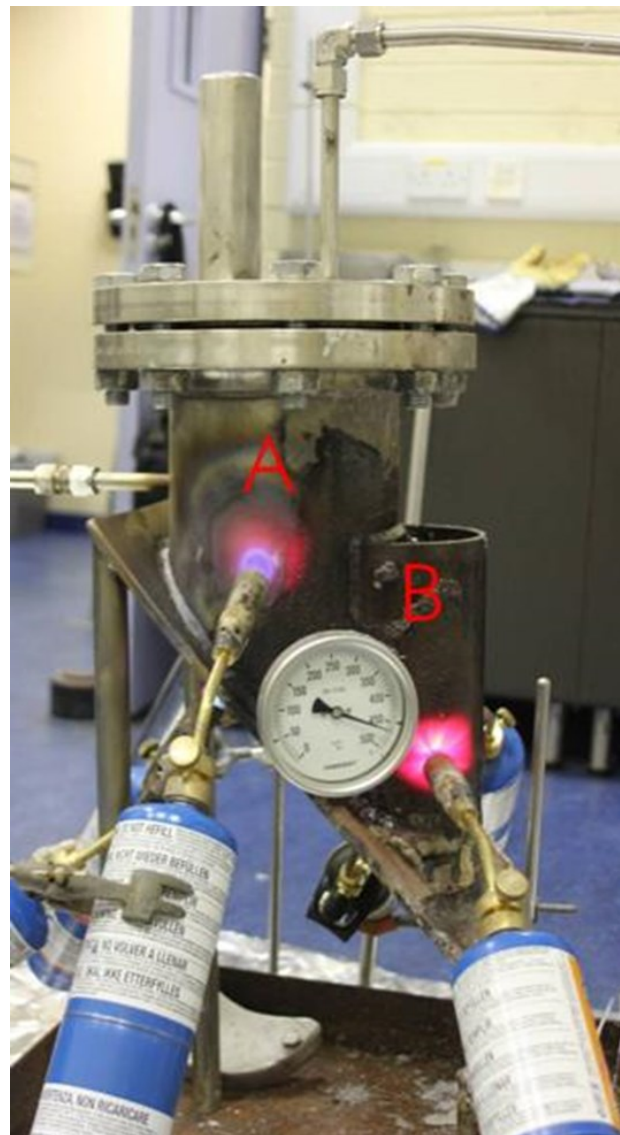
Start Date: 1st June, 2015

Duration: 6 months

End date: 30th November, 2015

Funding: €50,000

Coordinator: Ireland



Laboratory Scale Experiment

Project Partners

- ✓ Composite Recycling Ltd (Ireland)