

2016

Environmental/Sustainability Award | **Winner:** Revaluetech

Manufacturing and testing structurally loaded composites from recycled polymers

Overview

Revaluetech had two main objectives; first to develop a proven, cost effective, continuous process, to make products from mixed plastic waste currently landfilled and second to enable the manufacture of composites that compete directly on price and yet offer better physical and environmental performance compared to the concrete, wood and metal products they replace. Both of these objectives have been achieved in that the fully automated process is able to use rejected mixed plastic waste currently landfilled.

The resulting inert composite products offer 60% weight saving compared to their concrete counterparts, are virtually unbreakable and offer far longer, maintenance free service life. Evidence of this has been obtained during the past nine years whereby a range of products have been successfully trialled in a variety of applications.

Realisation that the incorporation of glass fibre could enable a range of higher performance technical products to meet consistent specifications has led to the development of polymer composite rail sleepers and bearers to be used in place of creosote treated wood.

As a preservative, creosote is to be banned by the EU in 2018. At the same time glass fibre reinforced composites are now under serious consideration in place of tropical hardwood traditionally used in the construction of groynes, revetments, sluice gates, weirs, canal lock gates and drainage channels by the Environment Agency. Glass fibre is mixed with the optimally designed blend of polyolefin polymers to achieve the optimum synergistic performance with the minimum required reinforcement, rendering the composite independent of the typical variations in the recycled polymer properties. The recycled blend properties play an important role as the glass transition temperature in this stochastic mix needs to be outside the service temperature range, to avoid failure under cyclic loading.



"While deforestation of tropical rain forests is now largely unsustainable Revaluetech technology offers the all-in-one-package to replace hardwood and treated softwood traditionally used for a wide range of civil engineering applications using post-use polymers to manufacture high quality, durable composite structures."

**Rod Fox, Managing Director,
Revaluetech Ltd**

The Composites UK Industry Awards are presented at the black-tie dinner on the first Wednesday in November. The event is aligned with the Composites Engineering Show in Birmingham.

Keep an eye out for our annual nomination process every May for your chance to apply.

www.compositesuk.co.uk/awardsdinner