



No longer seeing red with copper

A Dutch company has developed a way of separating copper from steel scrap. **Kees de Waard** explains how

■ THE PROBLEM OF COPPER IN STEEL SCRAP IS WELL KNOWN TO RECYCLERS AND STEEL

producers. Even after hand-picking, the red metal can be present in high levels. Excessive contamination causes new steel to be either too soft or too brittle, making it unsuitable for its intended purpose.

In steel originating from the household and e-scrap waste streams, the copper content averages 0.6% and 1.6% respectively – much more than the 0.1 or 0.2% a steel producer wants.

Five years ago, Delft University of Technology's Faculty of Civil Engineering and Geosciences professor Peter Rem and his colleagues began extensive research into the specific properties of steel and copper and identified differences which have led to the development of new separation technology. They developed the Clean Scrap Machine (CSM), which can lower the copper content to almost nothing. Rem was recently the recipient of an award for most entrepreneurial scientist, for his contribution to the technology behind ReSteel.

In October 2008, ReSteel was formed when private equity firm Icos Capital, a Dutch clean-tech investor, came up with a multi-million Euro funding package. Icos is the major shareholder in the initiative along with Delft University. The supervisory and advisory board members bring additional knowledge, networks and experience and the team at ReSteel includes leading scientists in separation techniques from Delft University, as well as experienced managers in the field of waste management.

The technology offers scrap processing companies in the European market a concrete technological solution to escalating scrap contamination issues, delivering clean scrap with a constant and known specification, and can reduce copper-rich parts by more than 90%. This means customers can not only meet the quality standards of the steel industry but can maximize the value of their scrap, while also increasing their processing capacity.

Numerous benefits are created with the CSM machine. Higher quality and purity means higher scrap prices and a revenue stream from the separated copper. The CSM also enables significantly more scrap to be processed per hour and means less manual labour is needed due to the reduced non-ferrous fraction. In addition, using a mechanical process that has been rigorously tested, it produces scrap with a consistent and known specification.

Then there are the environmental benefits. Steel and copper from ferrous scrap are materials that when clean, can be infinitely recycled. The critical word here, however, is clean. With ever larger quantities of electrical equipment in our waste, steel and copper are becoming so interwoven that current techniques can no longer entirely separate them, rendering them increasingly difficult to recycle.

Serious decline in the quality of scrap steel is jeopardising the entire scrap processing industry, which is why solutions with more powerful separation ability are needed.

Our first machine has been delivered in the Netherlands and steel factory Corus in IJmuiden has been working with the ReSteel scrap for several months now. The results are positive. This "ReSteeled" clean scrap is useful in steel production and means plants can reduce production costs by using more scrap material instead of iron ore.

The world's steel industry produces around 1.3bn tonnes of steel – 200 kg per person a year. If you consider the scale of the market, and the low cost of our solution, I am sure it can have an enormous impact. Since our first marketing events, we have been contacted by recyclers and steelmakers from all over the world. We think our results speak for themselves and we are on our way to carving a reputation for ourselves as the leading supplier of cutting-edge technological solutions for the steel recycling industry. ■

Kees de Waard is chief executive of ReSteel