

## EcoShred® Wiretec®: The art of economical ASR cable recycling

Modern US shredder plants have a non-ferrous downstream system that includes the separation of wire from ASR. Sensor sorters with a combination of camera and induction detection are usually used for this purpose. With modern camera technology, cables can be reliably detected even at high belt speeds of more than 3 m/sec, and stainless-steel wires can be reliably suppressed from detection and separation. Induction technology prevents empty insulation from being separated as cable, as it does not emit a metal signal. Good sorting is the basis for well-functioning ASR cable processing. Unfortunately, the world is often not perfect. Many sensor sorters separate a cable fraction that is contaminated with unwanted impurities.



An alternative and still underappreciated approach is AI-based inverse sorting. Shredders that want to produce premium-quality Shred increase the density of the Shred. This has positive consequences for the NF metal content in the ASR, but also results in an increasing proportion of fine / ultra-fine copper strands. Many sensor sorters reach their performance limits here, which leads to loss of metals in the residue. Inverse sorting takes a different approach: instead of positively separating cables, it negatively separates plastics. This inverse sorting has the advantage that no cables, no matter how thin, are lost. This sorting method is the best way to maximize metal recovery, especially if the processing method with the EcoShred® Wiretec® is applied.

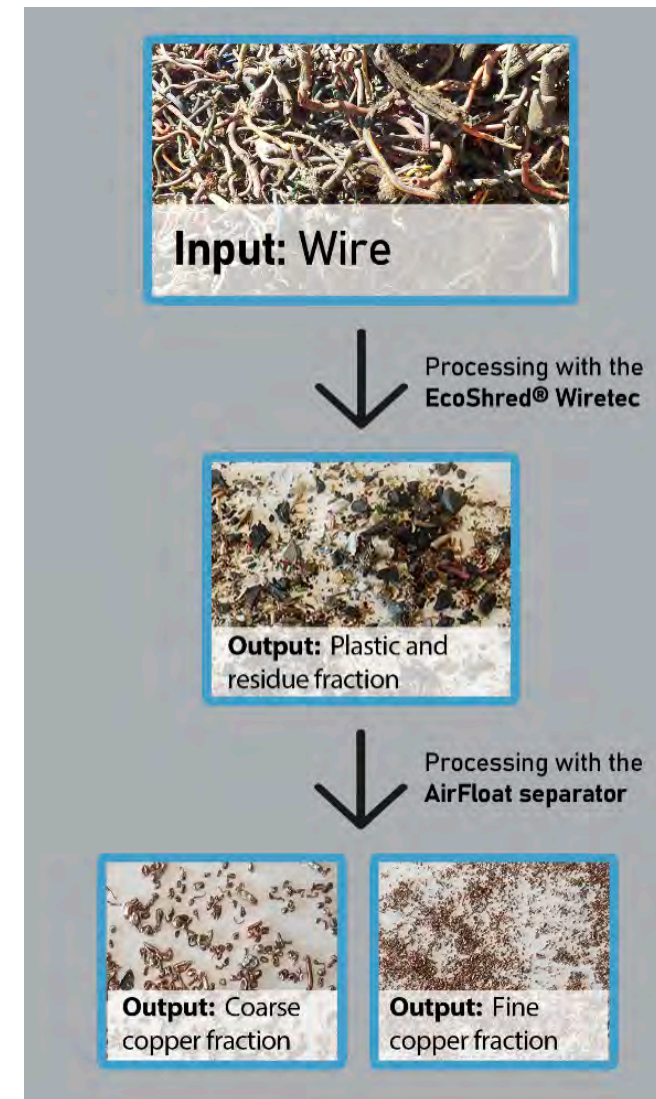
Typical ASR cable recyclers still use granulators that cut the cables and liberate the copper. If the liberation process is not followed by balling, complete copper separation on separation tables is a challenge. The screen elements of the air tables must be cleaned frequently

otherwise the separation quality suffers and copper strands can migrate into the residue fraction. Balling is a common process variant today that enables complete density separation. Cutting and balling are two processing steps that generate considerable maintenance costs, which increase progressively when contaminants are present in the feedstock, be they foreign metals such as stainless-steel cables or abrasive deposits.

Clayton County Recycling (CCR) and SICON America are taking a different approach, setting standards for the economical processing of ASR cables. With the EcoShred® Wiretec® vertical high-speed mill, cable-rich Zurik, as well as other copper-rich fine material fractions, can be processed highly efficiently. The EcoShred® Wiretec® shreds, liberates, and balls in a single step. A positive side effect is the magnetization of stainless-steel wires for efficient separation with the SICON stainless steel separator.



The Wiretec's output is discharged pneumatically and enters a dropbox that separates the exhaust air from the product. The heavy fraction is processed downstream into high-purity copper fractions. The EcoShred® Wiretec® is designed without screen or blades, resulting in minimal wear and maintenance. The four grinding levels, arranged one above the other, ensure sufficient size reduction and complete liberation.



The EcoShred® Wiretec® is a proven design that demonstrates its reliability and performance in daily multi-shift operation. All wear parts are easy to replace and are made of highly wear-resistant steel such as Dillidur / Har-dox 600. All hammers can be rotated (up to four times) or replaced within 30 minutes. Unlike with a cutting mill, there is no need for a technician to check the distance between the rotor and stator blades with a feeler gauge. The EcoShred® Wiretec® is designed and built for tough everyday use in a recovery system.

It's not just the machine design that impresses. The EcoShred® Wiretec® is equipped with a modern control system. The controlled material feed in conjunction with the frequency-controlled motor (300 or 415 HP) ensures that the machine delivers maximum performance. All relevant machine parameters are recorded and evaluated and all data is analyzed for predictive maintenance planning. The entire downstream separation process can be fully automated and the performance of the plant can be checked at any time and from anywhere. In this respect, the EcoShred® Wiretec® meets the highest requirements for modern machine control.

### About the authors:

Fred Runde  
President of Clayton County Recycling, LLC, Monona, IA  
fred@ccrrecycling.com

Heiner Guschall  
CEO of SICON America, Atlanta, GA,  
h.guschall@sicon-america.com

