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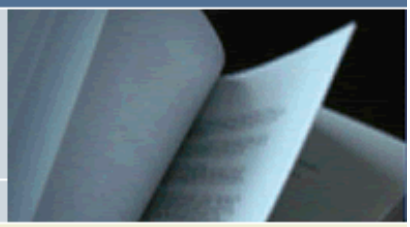
Advances in Electronic Waste Recovery (Technical Insights)



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Research Overview

This Technical Insights research service entitled *Advances in Electronics Waste Recovery* provides an overview of emerging technologies for electronics recycling, along with key drivers, restraints, and analysis of trends witnessed in the electronics recycling industry. In this research, Technical Insights' expert analysts thoroughly examine the following technologies: plastics recycling, metals recovery, CRT recycling, and sortation and separation techniques used for e-waste recovery.

Market Overview

Efforts to Protect Environment and High Value Material Recovery Promote Interest in Electronic Waste Recovery

Electronic waste recovery is an emerging area, poised for fast growth in the next few years which is driven primarily by rising environmental concerns about the methods commonly used to dispose waste electrical and electronic equipment (WEEE). WEEE were typically disposed either in landfills or incinerated. Incineration of WEEE releases dangerous emissions such as dioxins and furans into the atmosphere and landfilling is believed to cause ground water contamination due to leaching of toxic metals such as lead, arsenic and so on. This poses a tremendous threat to the environment, driving governments of many developed countries to introduce strict directives for the collection, recovery, and recycling of WEEE. Directives such as WEEE from the European Union (EU) have finally cornered electronics manufacturers to look for advanced technologies that would enhance recovery of valuable materials such as precious metals and high-value plastics present in their products, thus enabling sustainable manufacturing in the electronics industry.

However, electronic recyclers face certain technology challenges such as finding a way to obtain directly marketable streams from recycling operations, as this would improve profitability. Using recovered material streams for high-value applications enhances the value of the entire recovery process; in this respect, metals have a well-established route for reuse when compared to recovered plastic from WEEE. While it is difficult to pinpoint specific materials with a potentially huge impact, nonflame-retardant plastics reclaimed from e-waste have high-value applications. "Sustained research in this area is required for recyclers to have access to

the best available technology that can enable maximum recovery of valuable materials from electronic waste," notes the analyst of this research service. "This will provide more return on investment to help stay ahead of competition."

Major Challenge Posed by Plastics Recovery Spurs Research Efforts to Identify Appropriate Technologies

While there is increasing interest in recycling plastics from electronic waste, the actual process of recycling useful streams from the mixed plastics that occur in e-waste poses a major challenge. This is due to the presence of brominated flame retardants in the plastics stream, which not only reduce the value of the material recovered but also cause considerable complications during the separation of plastics. In the United States, companies have successfully developed analytical and mechanical sortation techniques to address these separation difficulties. Some companies are also attempting to enhance the value of recovered materials using different combinations of mechanical processing steps. "Thus, the increasing emphasis on e-waste recovery is bound to create a greater need for separation equipment such as eddy current separators, electrostatic separation, hydroclone separators, and flotation techniques," observes the analyst.

In Europe, the CreaSolv® solvent removal technology shows great promise in dissolving the brominated flame retardants from WEEE and separating them for use in the bromine industry. In this way, the final plastic stream obtained contains less than 0.1 percent flame-retardant content in adherence to the Restriction of Hazardous Substances (RoHS) directive and is fit for reuse in the electronics manufacturing industry.

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