

## **Advances in sustainable approaches to recover metals from e-waste-A review**

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### **ABSTRACT**

For the rapid growth of population electrical and electronics equipment waste are generated 20 to 50 million tones in world-wide. Half a tonne of e-waste creates by the resident of advanced country in every year. E-waste contains different toxic substances including metals, plastics and refractory oxides which are hazardous or risky for our environment and human wellbeing, thus e-waste management is an essential. Hence, this review outlined the global status of e-waste and its current progress on management worldwide. An exhaustive survey of literature was made on the latest technological approaches in noble and base metals recovery from waste printed circuit boards (PCBs) of electrical and electronic equipment. An emphasis was given to review the most important features of existing industrial routes associated with the metal recovery systems from PCBs. The discussions of green technologies as alternatives of conventional approaches to obtain precious metals from e-waste were overviewed. The application of microbial bioleaching approaches in the extraction metals from e-waste was highlighted. Finally, the concern for the challenges and barriers associated with the e-waste management process in Bangladesh was outlined.

### **KEYWORDS**

E-waste; Green technology; Bioleaching leaching; Precious metals

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