

FS-44

**Study of Valuable and Hazardous Metals from Capacitors of Personal Computer**

Lekha Jagannath Dhote, Mayuri Kataria, Sushant B. Wath

*CSIR-National Environmental Engineering Research Institute, Nagpur*

---

Desktop personal computer (PC) is one of the major contributors of the waste electrical and electronic equipment's (WEEE) generated worldwide. Composition of a typical desktop PC is complex and consists of hundreds of different materials which may be valuable, precious as well as hazardous in nature. Due to globalization and changing economic scenario, huge amount of E-waste is generated and its management has become a challenging task. The present paper highlights the various metals that can be recovered and recycle from the capacitors obtained from the printed circuit boards (PCB) of Central Processing Unit (CPU). Capacitors contain valuable (Aluminum, iron, copper, zinc, magnesium, manganese, nickel, etc.), hazardous (lead, chromium) and precious (silver) metals. The study of capacitors has been broadly undertaken following various systematic steps, which includes study of different types of capacitors present on the PCBs, its quantification, and characterizations studies. Effect of surface area on metal leaching efficiency was studied. It was observed that the electrolytic capacitors are present in higher quantity followed by solid electrolytic capacitors. Most of the valuable and hazardous metals were found in ceramic, film and solid electrolytic capacitors, also the metal leaching rate enhances by increasing surface area.

Keywords: E-waste, Heavy Metals, Leaching, Recovery, Recycling.

\*\*\*\*\*

