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# STUDIES ON THE PRE CONCENTRATION OF PRECIOUS METALS IN THE COPPER METAL DURING SMELTING OF SPENT PCBs AND OPTIMISATION OF THE PROCESS PARAMETERS

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**G**lobalization of information and communication have not only revolutionized our lives, our industries and our economies but also led to hazardous wastes and other wastes generated from electronics. Electronic waste or e-waste is a term for electrical and electronic equipment's that have become discarded or obsolete. As the technology is advancing at a high rate, many electronic devices are becoming trash only after a few years of use. As a result they get obsolete and rapidly fill the landfills of the globe. Almost all electronic waste contains some or the other form of recyclable material including plastic, glass and metals. The need of recycling the e-waste is increasing day by day with the increase in production of electronic devices and discarding them after usage. The process of e-waste management starts with collection of the e-waste from various consumers from home, offices, industries, private and public organizations. The collected e-waste is dismantled and the metals and plastics are recycled. Most of the value depends on the recycling of spent printed circuit boards as it contains precious metals such as gold, silver and palladium. The polychlorinated biphenyls (PCBs) are processed either by pyro metallurgical route or by hydrometallurgical route. On large scale PCBs are co-processed with copper ore using pyro metallurgical technique and hydrometallurgical techniques. C-MET Hyderabad has developed a unique process methodology for the recovery of precious metals through pre concentration in copper and separation of copper and precious metals and recovery of precious metals. Depopulation, smelting, electro refining and chemical precipitation are the major processes involved. The distribution of precious metals in the copper melt and slag depends on a number of chemical and physical parameters of smelting. A systematic study on these factors is not available in the literature. Hence this work is proposed. In this work, effect of temperature, flux composition, holding time, oxygen partial pressure etc on the separation of metal and slag, distribution impurities and desired metals etc shall be studied.

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