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Physicochemical characterization of CETP sludge

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In this current study, tannery waste have been characterized and chemically analysed for several applications. The present study might propose the usage of tannery waste in polymerization and immobilizing the chromium present in the sludge. The characterization studies of CETP sludge reveals the composition of heavy metal, sulphate, chlorides, pH of the sludge, total chromium present in the sludge, leachability to hexavalent chromium, physical properties etc. Instrumental method of analysis like FTIR, XRD, XRF, AAS, UV-spectrophotometer analysis have been carried out to analyse the characteristic properties of the sludge. FTIR anlaysis peaks confirms the presence of calcium in the form of sulphate and carbonate. SEM-EDX analysis were carried out to study the morphology and structural composition of the sludge. The results of the study revealed that the concentrations of metal ions in the sludge were low, but the concentrations of chloride and sulphate ions were found to be high. The concentration of the chromium in the sludge is found to be high than the admissible limit with no further oxidation to hexavelent chromium. The amount of calcium content in the CETP sludge is found to be high and it can add a major advantage in easy binding of CETP sludge with inorganic polymers.

Keywords: CETP sludge, XRF, AAS, UV-spectrophotometer, FTIR, XRD, SEM-EDX, leachability test.